

MAY 7 1928

MOTOR AGE

A Chilton Class Journal Publication
Published Weekly May 3, 1928

World's Largest Selling "6"

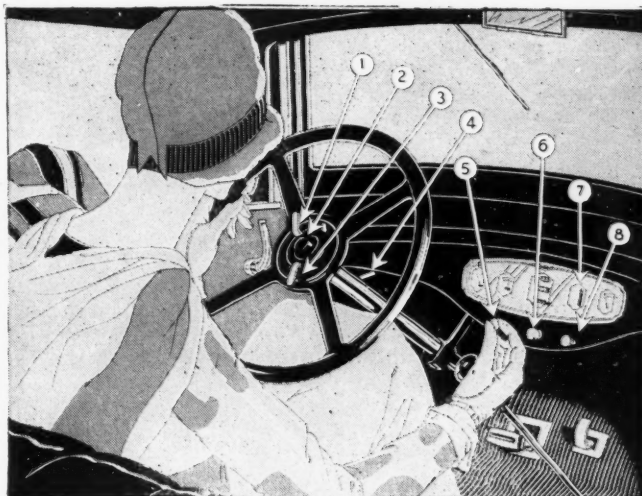
—and Women by *Thousands* are
Swelling These Sales

In the way women by thousands are turning to Essex is a story of the great and dynamic "man's Super-Six" made beautiful for women.

In all 6-cylinder history there has never been such spectacular acceptance of any car as that which everywhere greets the new Essex Super-Six. It is outselling all other "Sixes", and its own previous records, by such outstanding margins as to leave no doubt of its leadership.

In some places its sales excel its former mark by 100%, 200% and 300%. In Detroit, for instance, where automobile values are understood better than anywhere in the world, Essex sales have been greater than the *next three* "Sixes" combined.

Such success can only reflect an accurate and unmistakable public appreciation that Essex is the World's Greatest Value—Altogether or Part by Part—Please Compare.



Simple, Compact and Convenient

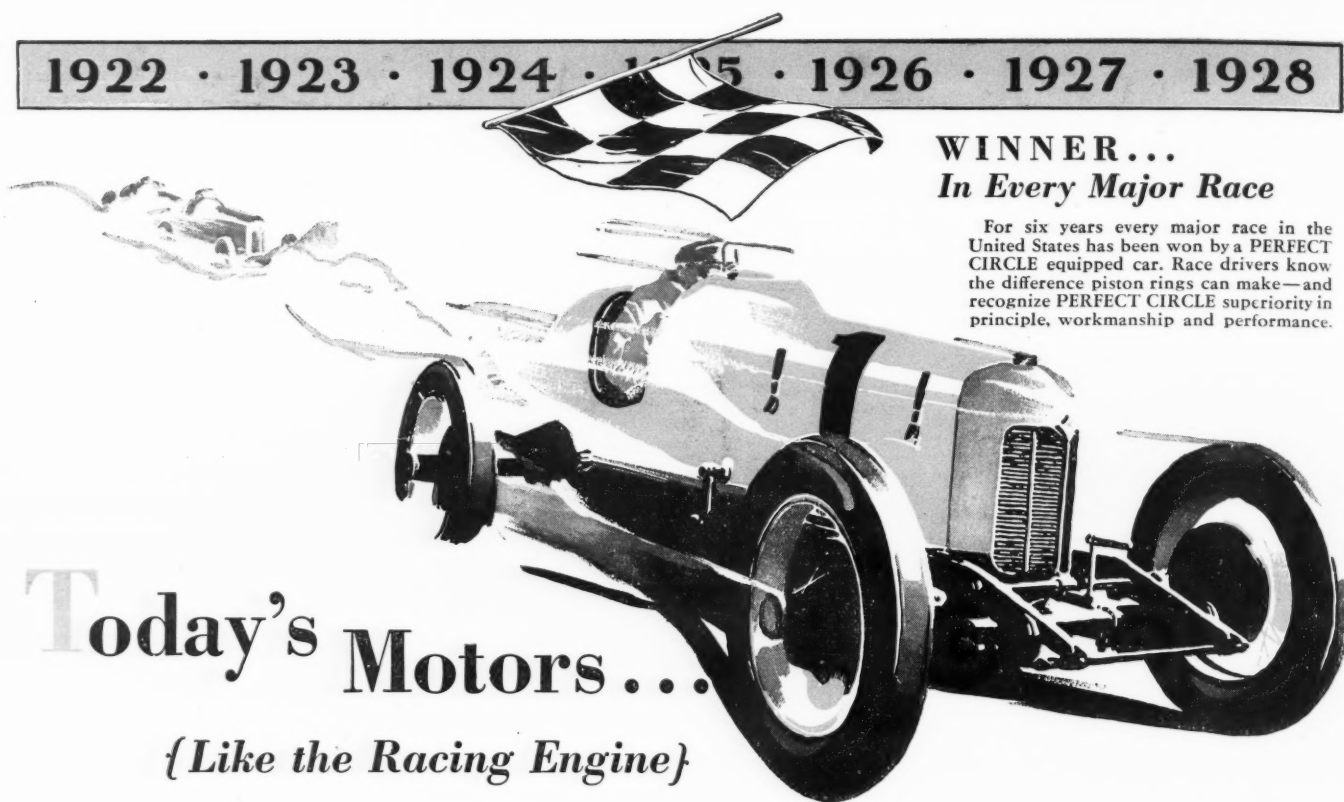
- 1. Light control 2. Horn button 3. Throttle
- 4. Radiator shutter control 5. Starter 6. Electro-lock
- 7. Gasoline gauge 8. Choke

COUPE \$745 (Rumble Seat \$30 extra) COACH \$735 SEDAN (4-Door) \$795
All prices f. o. b. Detroit, plus war excise tax

HUDSON MOTOR CAR COMPANY, DETROIT, MICHIGAN

ESSEX SUPER SIX

1922 · 1923 · 1924 · 1925 · 1926 · 1927 · 1928



WINNER... In Every Major Race

For six years every major race in the United States has been won by a PERFECT CIRCLE equipped car. Race drivers know the difference piston rings can make—and recognize PERFECT CIRCLE superiority in principle, workmanship and performance.

Today's Motors...

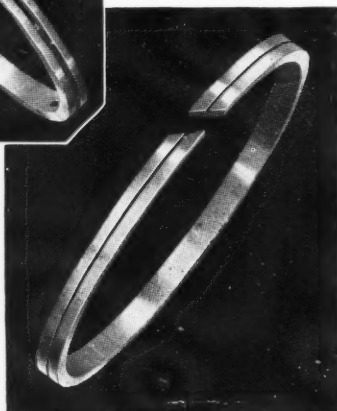
{Like the Racing Engine}

Need PERFECT CIRCLES



Oil-Regulating Type, 60c
Pat. May 2, 1922

Compression Type, 30c



Compression is power and no motor can have compression without good compression rings. That's why the foremost race drivers use PERFECT CIRCLE Compression rings in combination with PERFECT CIRCLE Oil-Regulating rings.

A ROAR... a flare of color... and they're off again! Tiny cars with rocketing, streaking speed... and PERFECT CIRCLES insuring oil economy, cylinder lubrication, and power through every flashing mile.

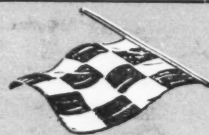
For six years America's leading race drivers have relied on PERFECT CIRCLE *Oil-Regulating* and *Compression* rings—the kind of piston rings a motor *must* have to operate at these high speeds... AND YOUR CUSTOMERS' HIGH SPEED MOTORS NEED THESE SAME KIND OF RINGS.

Regardless of the speed at which cars are driven today {and they are being driven much faster} PERFECT CIRCLE *Oil-Regulating* rings are saving every drop of oil that isn't actually needed to lubricate the cylinder walls—increasing oil mileage, lengthening cylinder life.

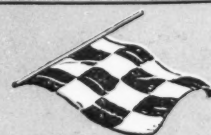
Take a lesson from race drivers. They know their piston rings.

REPLACE WITH PERFECT CIRCLES.

THE PERFECT CIRCLE CO., Hagerstown, Indiana

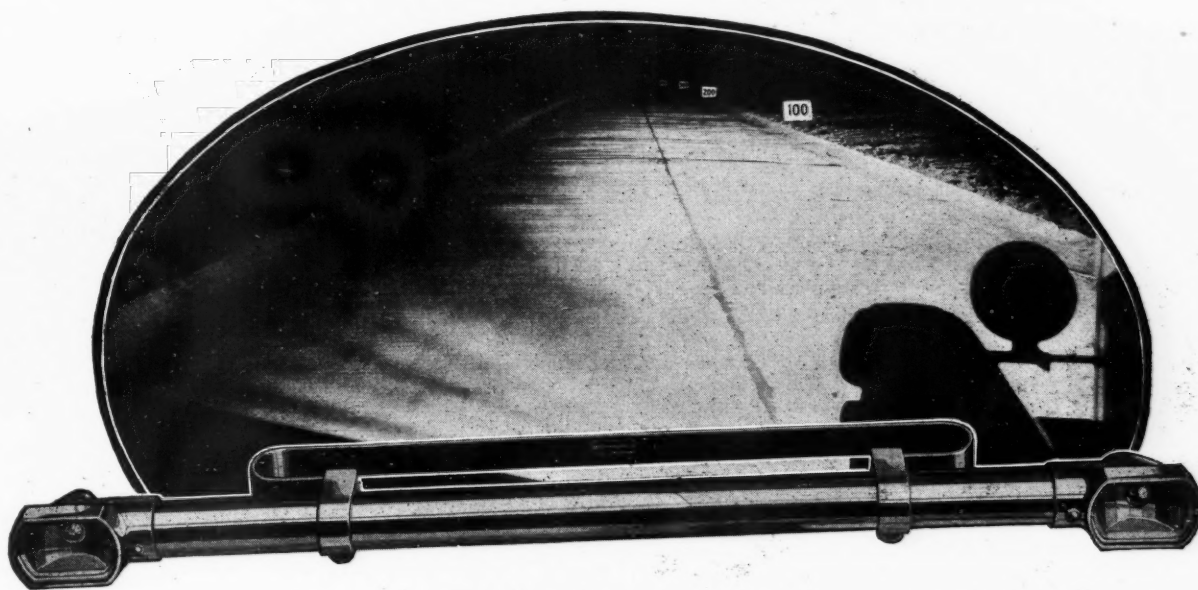


PERFECT CIRCLE PISTON RINGS



ANSWERING 100,000 QUESTIONS (more or less.)

No! Bright Bumper Ends Do Not Break



8 BIG Bright Bumper Advantages

- 1—Beautiful and harmonious in appearance.
- 2—Husky, dependable. A bulwark of protection between your car and trouble.
- 3—Powerful, safety driving lights that illuminate the road from ditch to ditch for more than 360 feet ahead of the car.
- 4—All glare eliminated.
- 5—Lights set wide apart. Approaching drivers turn out. Danger of sideswipe eliminated.
- 6—Lights cut under fog. Making driving almost as safe and easy on a foggy night as through darkness.
- 7—Bright Bumper ends, lenses and reflectors are unconditionally guaranteed, and if they are broken, replacements will be made without charge.
- 8—The Bright Bumper has been tested and approved by the Underwriters Laboratories.



In Over A Year Actual Replacements Have Been Less Than 1/2 of 1%

There's the answer. Plain! Emphatic!

BRIGHT Bumper Ends, lenses and reflectors are guaranteed against breakage. The bumper ends themselves are made of malleable iron. Patented reflectors and lenses are inset into this husky housing—recessed and protected in such a way that breakage is next to impossible.

The remarkable Bright Bumper safety driving lights give clear visibility of the entire road, without glare. They illuminate ditches, curves, culverts, curbs, poles, road signs. They give an extraordinary range and spread of light without sacrifice of long range.

Here is a bumper that provides the utmost in protection, and in addition paints a path of daylight on the road ahead. You may sell it with every confidence, and be sure that if any breakage to ends, lenses or reflectors are ever needed they will be made FREE.

(Write at once for details and generous discounts)

The Warren Tool & Forge Co.

500 Griswold St., Warren, Ohio

Central Sales Division: THE ZINKE CO.

1325 Michigan Boulevard, Chicago, Ill.

BRIGHT BUMPER

ECLIPSE

BENDIX DRIVE



Approximately 1½ Times Actual Size

WITH the Eclipse Bendix Service Sleeve you can make a permanently satisfactory replacement on the Eclipse Bendix Drive, without special tools or machinery of any kind. Only a hammer and blunt chisel are needed to install it quickly.

Four sizes of the Service Sleeve fit all types of Eclipse Bendix Drives. Like all genuine service parts they are accurately made, of the finest material, and zinc-coated to prevent rust. A nearby jobber can supply you with Service Sleeves, either separately, or as a part of the new Dealer's Assortment Box, which will permit you to give complete service on 75% of the cars in operation today.

ECLIPSE MACHINE COMPANY, ELMIRA, N. Y.
 Eclipse Machine Co., East Orange, N. J. ✨ ✨ Eclipse Machine Co., Ltd., Walkerville, Ont.

MOTOR AGE

Vol. LIII

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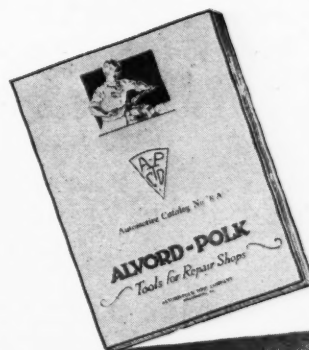
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FOR YOUR

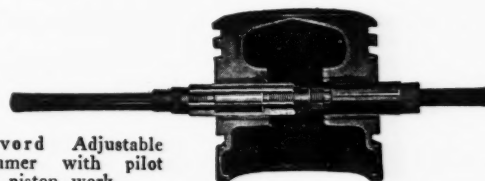


CONVENIENCE

The new Alvord-Polk Catalog, covering the complete line of Alvord-Polk products, is now ready for distribution.

In it—concise—complete—is all the information necessary to dealers—with no unnecessary pages of reading matter.

Ask your jobber for a copy or write us direct.



Alvord Adjustable Reamer with pilot for piston work.



In the opinion of many the finest adjustable reamer made. Cuts smooth, perfect holes. Straight and "sheer cut" blades.

ALVORD-POLK TOOL COMPANY
Millersburg, Pa.

ALVORD - POLK

Tools for Repair Shops

If... You Want a Catalog or Literature

The Size or Price of Any Garage
Equipment or Parts or Anything
Automotive that Interests You—

Just Ask Us!

Come to Automotive Headquarters!

If you are interested in information about shop equipment, tools,
replacement parts, accessories, etc., check them in the squares below,
and MOTOR AGE will see that data are forwarded you.

This is the old established MOTOR AGE "Clearing House" service,
made easier for you.

Tear Off the Coupon—Check Not More Than 10 Items—Information Will Follow

CHECK NOT MORE THAN 10 ITEMS AND MAIL TO

Motor Age
Chestnut and 56th Sts., Philadelphia, Pa.

I want catalogs or literature about the "Clearing House" items checked below.
This inquiry is not an order, nor does it obligate me in any way.

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| Equipment and Tools | <input type="checkbox"/> Drain pans, oil | <input type="checkbox"/> Steam cleaning equip-
ment | Replacement Parts | Shop Supplies |
| <input type="checkbox"/> Air compressors | <input type="checkbox"/> Drill press | <input type="checkbox"/> Tanks, parts cleaning | <input type="checkbox"/> Armatures, rewound | <input type="checkbox"/> Babbitt metal |
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supplies | <input type="checkbox"/> Brake and clutch lin-
ing | <input type="checkbox"/> Flux, soldering or bab-
biting |
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| <input type="checkbox"/> Brushes, wire | <input type="checkbox"/> Grinders, valve | <input type="checkbox"/> Gages, feeler | <input type="checkbox"/> Gears, rear axle | <input type="checkbox"/> Paper, emery and sand |
| <input type="checkbox"/> Carbon burning equip-
ment | <input type="checkbox"/> Hoists, shop | <input type="checkbox"/> Hammers, machinists' | <input type="checkbox"/> Gears, timing | <input type="checkbox"/> Solder, self fluxing |
| <input type="checkbox"/> Chargers, battery | <input type="checkbox"/> Hoists, wrecking | <input type="checkbox"/> Micrometers | <input type="checkbox"/> Gears, ring | Accessories |
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tool | <input type="checkbox"/> Lathes | <input type="checkbox"/> Wrenches | <input type="checkbox"/> Pistons | <input type="checkbox"/> |
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| <input type="checkbox"/> Cylinder recondition-
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| <input type="checkbox"/> Dies and screw plates | <input type="checkbox"/> Presses, arbor | <input type="checkbox"/> | <input type="checkbox"/> Rings, piston | <input type="checkbox"/> |
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| | <input type="checkbox"/> Pullers, wheel and gear | | <input type="checkbox"/> Spark plugs | <input type="checkbox"/> |
| | <input type="checkbox"/> Reamers, all kinds | | <input type="checkbox"/> Valves | <input type="checkbox"/> |
| | <input type="checkbox"/> Refacers, valve | | <input type="checkbox"/> Wire, all electrical | <input type="checkbox"/> |
| | <input type="checkbox"/> Soaps, car washing | | | |

Name Street and No.

City State

Note: When convenient please enclose business card or letterhead. If from an individual state nature of employment and by whom employed.

Add to your Profits ~ Multiply your Demand ~ Subtract from Overhead ~ Divide your Appeal ~

STUDEBAKER'S four great lines of quality cars, ranging from \$795 to \$2250, f. o. b. factory, add to the dealers' profits because—

These four lines multiply the demand for his merchandise, reaching a greater range of prospective buyers, and they—

Subtract from his overhead by giving him literally four dealerships under one roof and management, splitting expenses four ways, at the same time enabling him to—

Divide his appeal so as to reach fully 100% of the quality car buyers in his community—to sell and satisfy the major share of his local market!

Little wonder the retail deliveries of Studebaker dealers are steadily mounting—little wonder dealers are seeking the Studebaker-Erskine franchise as the most profitable in motordom!

*No need to be a mathematician
to figure out why these four lines
are big profit-makers!*

The New President Straight Eight
100-H. P.—80 M. P. H.—131-in. wheelbase
\$1985 to \$2250

The World's Champion Commander
25,000 miles in less than 23,000 minutes
\$1465 to \$1625

The New Dictator
24-hour record for stock cars under \$1400
\$1195 to \$1395

Studebaker's New Erskine Six
24-hour record for stock cars under \$1000
\$795 to \$965

(All prices f. o. b. factory)

THE STUDEBAKER CORPORATION OF AMERICA
Dept. 51, SOUTH BEND, INDIANA

Please send me full information on the Studebaker-Erskine franchise.

Name

Street Address

City and State

My present business (if selling cars, state make)

NEW CONTRACT for towns and villages

For small communities we offer a new and unusual contract. Hardly any capital is necessary. No shop need be operated. No used cars need be handled. No commitments need be made to purchase any particular number of cars. You can sell only the opening wedge of the line, the new Erskine Six at \$795, f. o. b. factory—maintaining an Erskine demonstrator entitles you to sell all other Studebaker models as well as a profitable line of commercial cars. Mail coupon—or write for information direct to Department 51.

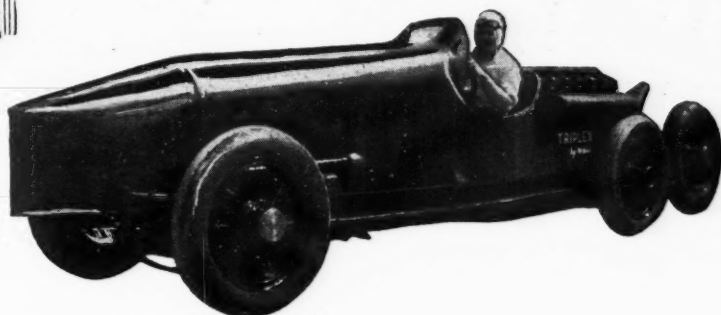
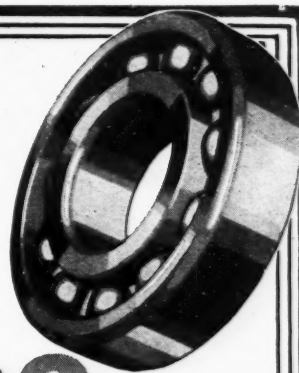


FIVE huge plants in four cities are engaged exclusively in the production of Nash cars. The Advanced Six factory and the general offices are at Kenosha; the Standard Six factory is at Racine; the Special Six plant and Seaman Body Corporation are at Milwaukee, Wis. At Pine Bluff, Ark., is the Seaman-Dunning Corporation, another affiliated Nash unit devoted exclusively to the processing of lumber for use in body building. The remarkable value-giving for which the name of Nash is famous is the result in no small part of these splendid manufacturing facilities.

THE NASH MOTORS COMPANY
Kenosha, Wisconsin



Power Speed Endurance



36 New Departure Ball Bearings
in the White Triplex, holder
of world's motor speed record.

World Motor Speed
record broken on
New Departure
Ball Bearings
at Daytona Beach
April 22 - 1928

Read what owner White says:

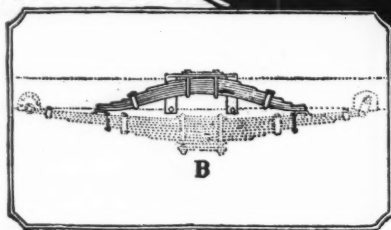
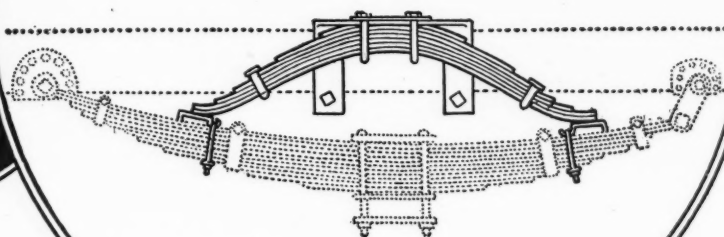
"Ray Keech drove my White Triplex to new world's record using New Departure Ball Bearings all through car and all performed perfectly. Have never changed a bearing since building my car and same has been driven over 500 miles at this terrific speed during past two months' trials. Many thanks for such quality ball bearings."

(signed) J. M. White.

New Departure Quality Ball Bearings



TRAINOR OVERLOAD SPRING



The large illustration shows the spring under a normal load. The Overload Spring does not, under these conditions, come into play. The small illustration shows the spring under excess tonnage. The Overload Spring comes into play taking up the excess load and relieving the strain on the regular spring.

Some of the Trucks That Trainor Overload Springs Fit

CHEVROLET—

1 ton—Model RX—1925
1 ton—Model X—1926-27-28

GRAHAM BROS.—

1½ ton—1924-26-27-28

GRAHAM G-BOY

1 ton—1926-27-28

FEDERAL-KNIGHT—

1 ton—1926-27-28
1½ ton—S 25—1925-26-27
1½ ton—S 23—1926-27-28

G. M. C.—

1 ton—Model T 20—1927-28
1½ ton—Model T 20C—1927-28
2 ton—Model T 40—1927-28

STEWART—

2-3 ton—1927-28

Every Light Truck Owner is a Prospect

The overloaded truck is a problem with every light truck owner. It's often necessary—usually desired—and always dangerous. Yet equipped with Trainor Overload Springs, any light truck immediately has a ton added to its loading capacity.

One Load Instead of Two

As a result, one load will often do the work of two. The added ton makes a second trip unnecessary. Hauling costs are reduced—time is saved—and consequently profits are increased.

Spring Breakage Reduced

Trainor Overload Springs take the strain off the regular springs and remove the danger of spring breakage even under excess tonnage. At the same time they act as shock absorbers taking up the jars and jolts before they reach the load or driver.

Easy to Attach

Any ordinary mechanic can attach a set of Trainor Overload Springs in less than an hour—and only a wrench is needed. No holes to drill—no alteration of frame necessary.

A Profitable Item

There's real profit in Trainor Overload Springs for the aggressive dealer who will go after the business. Hundreds of truck owners in your own community need and want them.

If your jobber can't supply you write direct.

TRAINOR NATIONAL SPRING Co. Newcastle, Ind.

MOTOR AGE

VOLUME LIII

Philadelphia, May 3, 1928

NUMBER 18

Studebaker Adds Stock Car Marks

Makes Records From Five to
25,000 Miles in Test
at Amatol

FULLY EQUIPPED

ATLANTIC CITY SPEEDWAY, AMATOL, N. J., May 1—The termination of a 2000-mile run here last night by a fully equipped stock Studebaker President model sedan saw Studebaker holding all records for fully equipped stock cars either open or closed for all distances from 5 to 25,000 miles.

The attack on the records began on April 20, when two fully equipped stock Dictator roadsters began a 5000-mile run. Within 4751 minutes the first one had finished and within 4892 minutes the other crossed the tape—an unequalled performance for any car in their price class.

Erskines Beat 60 M.P.H.

Following that run came the performing of two fully equipped stock Erskine Club sedans. Both of these cars exceeded 60 miles an hour for the full 1000-mile run and finished within 4 minutes of each other, the faster one making the 1000 miles in 984 minutes. Again performance unequalled in the price class.

As a climax came the run of the fully equipped stock President sedan—a straight eight. Circling the track at an average of 72.525 miles an hour for 2000 miles and establishing a new record for this distance it also established the following records for intermediate distances for fully equipped stock cars:

Distance	New Record	Old Record
5 mile	71.315	68.752
10	71.599	70.090
50	72.568	71.190
100	72.819	70.922
500	72.364	66.282
1000	72.514	67.771

The former record for 2000 miles which Studebaker bettered by nearly 7 miles an hour was 65.583 miles an hour.

The President sedan turned the track without mechanical or tire trouble, the only service performed, aside from supplying the car with gas and oil, being the installation of a fan belt.

Next Week

+ - + - +

AMONG the feature articles in next week's number of MOTOR AGE to which it will be worth your while to give some of your valuable time are:

+ - + - +

"Slip the Covers on Service Jobs and You Won't Have to Cover Up the Slips."

+ - + - +

"The Fable of the Limp Who Had One Trump Left." (The first of a series.)

+ - + - +

"They Found Themselves in the Lost File," whose forecast appearance in this issue was prevented by unforeseen circumstance.

+ - + - +

"What's in a Name? Millions of Dollars as Car Names Go," which relates the origin of the names of present-day cars.

World Record Breaker Used New Departures

BRISTOL, CONN., May 2—Elation over the setting of a new world's speed mark by Ray Keech in J. M. White's Triplex at Daytona Beach was the occasion of much rejoicing at the plants of the New Departure Manufacturing Co. Telegrams from both the owner and the driver of the world's fastest car complimented the manufacturer of the New Departure ball bearings with which it was equipped.

"These two messages were especially gratifying," says New Departure News, the factory house organ, "as they emphasize the quality of the product our men out in the plant are turning out day after day. These bearings were not specially selected but were bought by Mr. White from the stock on the shelves of the United Motors Service Corp., at Atlanta, Ga.

Auburn Record for April

AUBURN, IND., April 30—Unfilled orders indicate that April sales by Auburn Automobile Co. will be the largest in the history of the company.

Indianapolis Race May Set Records

Veteran Driver Predicts New
Speed Mark Bettering
DePaolo's

CARS IMPROVED

PHILADELPHIA, May 1—In a few brief remarks here today, Riley Brett, veteran race driver and mechanic, indicated that this year at the Indianapolis race would see performance and speed never before equalled with 91½ cu. in. cars on that track.

"I wouldn't be surprised," he said, "to see the record of 101.13 m.p.h. made by DePaolo in a 122 cu. in. Duesenberg Special in 1925 equalled or bettered.

"Of course there will be some important changes but it wouldn't be fair to the boys to talk about all of them here. One of these is the use of a special light alloy connecting rod in place of the former tubular steel rod. This change saves 6 oz. per rod, which in an eight-cylinder car turning about 7000 r.p.m. means a lot.

"Probably the most striking car there will be the entry of Earl Devore which will be completely chromium plated. This will include every part on the car including the body and wheels to cut down skin friction and protect all parts.

"Of course the car manufacturers will be watching this race closely. It is more than a sporting event. It is a great experimental laboratory. Here new alloys will be tested. Superchargers will be used differently this year than ever before and on the whole there should be much to influence future car design."

Fishers Buy Launches

NEW YORK, April 24—Two motor launches, one built for L. P. Fisher, president of the Cadillac Motor Car Co., and the other for W. A. Fisher, president of the Fisher Body Corp., were launched today at City Island. These boats, which are said to be the largest privately owned pleasure boats in New York, and the finest craft of their kind, are powered with eight-cylinder Winston gasoline engines, rated at 500 horsepower.

Parts Accessories Gain in Volume

March is Greatest Month
Ever. Predict a Record
Half Year

NEW YORK, April 30—The automotive parts and accessory industry had in March the greatest month in its history and has excellent chances of making the first half of 1928 a record six months. Makers of motors, bodies, and other parts and accessories for original equipment of cars and trucks reported shipments in March far ahead of February and of March last year and exceeding the pace of October, 1925, which had held the record, according to compilations of the Motor & Accessory Manufacturers Association.

The heavy volume of original equipment business, prompted by the extensive operations of car and truck makers, was supported by a large March distribution through the wholesale trade of parts, accessories and garage machinery and tools. The three latter classifications did not establish new records in March but business was substantially greater than in January and February.

April production schedules indicated only a slight falling off from March and orders on hand promised no more than an orderly seasonal decline.

Original equipment shipments in March of a large, representative group of M. & A.M.A. members aggregated 231 per cent of the base index figure, that is, total shipments of the same companies in January, 1925. This compared with 187 per cent in February, 195 per cent in March last year and 214 per cent in October, 1925, the previous peak month. Much of this equipment probably went into cars and trucks manufactured in April. Therefore, with expected seasonal curtailment of vehicle output in May, unit parts makers' schedules for April were slightly under March and further declines were anticipated in May and June. In a confidential survey of original equipment makers, however, the M. & A.M.A. learned that the second quarter's curtailment would apparently be so slight that, with a record first quarter, the half year would surpass any previous similar period.

McCord Quarterly Div.

NEW YORK, April 28—McCord Radiator & Mfg. Co. has declared a quarterly dividend of 50 cents on Class B stock payable May 1 to stockholders of record April 26.

Tunes From the House Organs

GEORGE T. HOOK
AT THE CONSOLE



BEING afflicted with as beautiful a case of galloping spring fever as has ever rendered helpless a member of the highest form of animal life, we scanned a good two score compositions this morning in an effort to find an ode to spring, a lilting rondeau on the effect of spring on a young man's fancy or, at the very least, a lead-pulling editorial with a "go-to-the-ant-thou-sluggard" injunction. We searched in vain and were so near the verge of passing out mentally that we had just caught ourselves muttering "All Gaul is divided into four parts and the greatest of these is Charity" when a brother editor approached the console. He had a grin on his face and a contribution in his hand. The latter was so utterly springly fanciful—a *chef d'oeuvre* explaining, by means of variation No. 14,633, the difference between a Hebrew and a Gentile—that our chortles dissipated ennui, as 'twere, and galvanized us into action. So we pull out the *vox humana* stop and commence this week's recital.

If you expose yourself to a contagious disease you stand a good chance of contracting it. If a salesman exposes himself to more business his chances of making sales are proportionately greater. An item in the *Chandler Times* proves the claim is not so much applesauce but very potent applejack. The *Times* relates the story of a salesman who started weakly and made such strides within a few months that his sales manager asked him "how come?" The salesman answered:

"When I first started I called on only a few prospects each day, but I found that with that procedure I was not going over big. So I decided to call on five or six prospects each day instead of two. I planned a systematic drive to build up business. I got up early and worked late. I kept exposing myself to prospects and it brought returns. I've found the secret. From now on I expose myself to business early and late."

Trindl Tips furnishes a choice example of turnover. "A shop in New York was advertising the famous people who came in and what they bought. They mentioned a certain man who bought an expensive vanity case. The next morning he rushed in breathlessly to buy one for his wife." Who's reminded by that one?

A happily tragic sketch of a Price Cutter is given in *K-I-P'S Message* (Frank C. Kip, Inc., Chicago). "The Price Cutter," so the tabloid description goes, "is a serious violator of sound business ethics—he is short-sighted. He is much like the fellow who stands with one foot on a boat drawing away from the dock and the other foot on the dock—he is neither on the boat nor the dock and the usual result is that he falls in and is then 'out of the picture.'" Sometimes he drowns and sometimes gets merely a good ducking, but in either case, unless he blinds himself to the obvious, he learns a lasting lesson.

Oh, what wouldn't some retailers give for an opportunity such as this:

Dealer (rushing into newspaper office): See here, you've published an announcement of my death by mistake. That's got to be fixed up somehow!

Editor: Well, we never contradict anything we have published, but I'll tell you what I'll do. I'll put you in the births column tomorrow and give you a fresh start.
—The Watson Stabilator Window.

Champions are numerous and sundry. The Cadillac CLEARING HOUSE crowns a new kind of champion in the person of F. D. Sawyer, of Boston, who is hailed as the champion Cadillac enthusiast. Mr. Sawyer has influenced the sale of 41 Cadillac-built cars. Of this number he has purchased 25 for his own use. There must be champion enthusiasts in other lines. Who are they?

SUCCESS IS NOT SO MUCH SITTING UP NIGHTS AS BEING AWAKE IN THE DAYTIME. *The Sunrise Trail.*

Motorcars Exceed All Other Power

Could Easily Run Away With
Stationary Engines and
Locomotives

WASHINGTON, April 30—In a tug-of-war, the massed horsepower of the motor cars in the United States could outpull all the other industries combined, according to figures compiled by the Department of the Interior.

Combine all the stationary engines of the country, from the highest type steam turbine and internal combustion engine down to the erratic windmill, and include the farm mule and the snorting locomotive, and still the automobile industry could hitch them all to its tow rope and go into high against the lot.

In 1923 the horsepower of all generating equipment, exclusive of passenger motor cars, was 230,514,000. The total, including passenger cars, was 684,044,000 hp. And that, the report points out, was in 1923!

If converted into man-power, this would furnish about 60 servants for every person in the United States the report states.

Bootleg is Cause of Unfair Competition in Handling of Freight

HARTFORD, CONN., April 30—George C. Hills, general freight and passenger agent of the Hartford & New York Transportation Co., at a hearing held by the chamber of commerce on the retention of the New York boat service, said that much alcohol came to Hartford from New York by motor trucks. The operators of these trucks, he said, carried return loads of freight back to New York at very low rates, thus depriving the boats of revenue that would otherwise come to them.

Studebaker Offers Heavy Duty Line

New Trucks, Designed for
High Speed, Priced
\$2,410 to \$3,275

SOUTH BEND, April 27—Studebaker Corp. of America is introducing a new fast delivery chassis for heavy freight loads in three types—a Model 75 Junior on 158-in. wheelbase listing at \$2,410; Model 76 Special on 184-in. wheelbase listing at \$2,775; and Model 75 Heavy Duty on 184-in. wheelbase listing at \$3,275. Weights respectively are 4400 lb., 4860 lb. and 5400 lb. These models with the Studebaker $\frac{3}{4}$ -ton at \$925 and the Erskine $\frac{1}{2}$ -ton at \$650, complete the Studebaker commercial vehicle line.

The Studebaker 75 engine is used in the new chassis and has been refined to deliver in excess of 90 hp. The chassis are designed to carry loads up to 2½ and 3½ tons at speeds of 25 to 55 miles an hour. Four-wheel, mechanical amplified action brakes are standard. A ventilated disk parking brake 14 in. in diameter is mounted on the propeller shaft directly behind the transmission and operated by a hand lever. Single or dual rear wheel equipment is optional and pneumatic tires are standard.

Fisher Heads Memphis Car Dealer Association

MEMPHIS, April 28—Frank N. Fisher, of the Memphis Motor Car Co., is the new president of the local dealer group. He succeeds Hugh Jetton, of the Bluff City Buick. Henry Kennady, of Kennady-Hull Co., Dodge dealers, is vice-president, and Thos. H. Smart, of the Thos. H. Smart Co., is reelected treasurer. Directors in addition to the officers are: Jeff Hicks, Erwin-Hicks Co.; Frank Graham, of Graham Merwin Co. and Hugh Jetton, of Bluff City Buick Co.



From Cape Town to Stockholm

THE Chevrolet Expedition—you read about it in Motor Age—sets out from Cape Town, South Africa, on its 10,000-mile trail-blazing trip. It is the first attempt to traverse Africa from tip to tip in a light stock car, and to date, although the journey has been a tough one because of heavy rains, fair progress is reported. The expedition is equipped with a receiving set

What's Coming In Motordom

SHOWS

Automotive Equipment Ass'n, Coliseum, ChicagoOct. 22-27
 *ChicagoJan. 26-Feb. 2
 National Standard Parts Association, Cleveland Auditorium...Oct. 29-Nov. 3
 *New YorkJan. 5-12
 *Will have special shop equipment exhibit.

CONVENTIONS

Automotive Engine Rebuilders Association, Coronado Hotel, St. Louis, June 11-14
 Automotive Equipment Association, Grand Hotel, Mackinac Island, June 17-23
 Automotive Equipment Ass'n, Coliseum, ChicagoOct. 22-27
 National Association of Automobile Show and Association Managers, Drake Hotel, ChicagoJuly 26-27

National Standard Parts Association, Hollenden Hotel, Cleveland, Oct. 29-Nov. 3
 New Jersey Automotive Trade Ass'n, ElizabethMay 8
 Society of Automotive Engineers, Chateau Frontenac, Quebec...June 26-29
 Utah Automobile Dealers Association, Salt Lake CityMay 16
 World Motor Transport Congress, RomeSept. 25-29

RACES

AltoonaJune 16
 IndianapolisMay 30

June 10—A. E. A. Summer Meeting Number, Motor World Wholesale
June 23—Engineering Issue—Automotive Industries

Automotive Executives Head P. A. Association

LANSING, April 30—A number of purchasing agents of local companies associated with the automotive industry have been elected officials of the Lansing Purchasing Agents' Association. They are: L. M. Crosby, of the Dail Steel Products Co., president; C. R. Morris, Michigan Screw Co., vice-president; S. S. Bennett, Capital Casting Co., treasurer; Clifford C. Garlock, VanDervoort Hardware Co., secretary.

There are four directors: Willard N. Sweeney, purchasing agent of the Michigan State College; C. A. Morse, of the Reo Motor Car Co.; A. C. Pratt, Duplex Truck Co., and L. P. Slivenski, of the Fisher Body Corp.

The national director, chosen for a two-year term is W. E. Ceeley, of the Simon Iron & Steel Co.

Isherwood Again Heads Flint Automobile Club

FLINT, April 28—The Flint Automobile Club has again re-elected W. S. Isherwood president. Mr. Isherwood is general sales manager of the AC Spark Plug Co., and, under his direction the local automobile club has enjoyed a remarkable growth.

Graham-Paige Net Up

NEW YORK, April 29—Graham-Paige Motors Corp. and subsidiaries, for the quarter ended March 31, report net profit of \$257,783 after charges and depreciation, equivalent after allowances for preferred stock dividends to 15 cents a share earned on 1,052,926 shares of no par common stock. This compares with net loss of \$185,798 in the first quarter last year.

Joseph B. Graham, president, said net earnings in March were \$404,786 after depreciation. Output in the first quarter totaled 13,132 cars of which 7616 were produced in March. April output is at higher levels, the first 19 days showing 5275 production against 4234 in the first 19 days of March.

*He's Identified With
Monroe Hydraulics*



C. O. Miniger

YOU read in the MOTOR AGE, last week, that Mr. Miniger, nationally known manufacturer of automobile starting, lighting, and ignition systems, has been made a director of the Monroe Auto Equipment Co., of Monroe, Mich. Here's how he looks when smiling.

Four May Be Chosen as Athletic Club Directors

MILWAUKEE, April 27—Four Prominent members of the automotive industry and trade are candidates for members of the board of directors of the Milwaukee Athletic Club at the annual election to be held May 1. William S. Harley, treasurer and chief engineer of the Harley-Davidson Motor Co., and Roland F. Coerper, president of the Western Motor Supply Co., wholesale automotive equipment, have consented to seek reelection for the three-year term, and Robert P. Druecker, president of R. P. Druecker, automotive engineering, also has been nominated.

Clarence P. Hatter, proprietor of the East Side Buick Co., recently appointed a director to fill a vacancy, is unopposed for election.

Rochester Group Names C. P. Gallagher President

ROCHESTER, N. Y., April 28—Charles P. Gallagher, president of the Gallagher Motor Co., Inc., Studebaker-Erskine distributor, has been elected president of the Rochester Automobile Dealers' Association.

Other officers elected are: Vice-President, J. Howard Kidd, Jr., Franklin; Secretary, J. E. Hansen, Packard; Treasurer, James J. Williams, Hupmobile. Directors are R. W. Marran, Pierce-Arrow; E. J. Horton, Dodge, and G. W. Henner, Oldsmobile. Robert J. Menzie is executive secretary.

Dissolve Partnership

PHILADELPHIA, April 28—Berry & Lischenor, manufacturers' agents, have dissolved partnership. Mr. Lischenor continues with the Hoof line and Mr. Berry with the Ohio piston line and Frank Kips, Security products.

De Soto Adds Five to the Family



If you've read the story at the side of the page you're interested to see the young men themselves—and here they are. Reading from right to left, at top: John J. Palmer, assistant to the vice-president in charge of sales; C. G. Hall, director of sales development; lower row: J. L. Ballard, director of districts; Milton Pulford, director of service; Karl H. Bronson, advertising manager

W. F. Whiteman Joins Monroe Auto Equipment

MONROE, MICH., May 2—Walter F. Whiteman, formerly with the engineering research department of the Studebaker Corp. of America, has joined the Monroe Auto Equipment Co., manufacturer of Monroe hydraulic shock eliminators. A graduate of the Tri-State College of Engineering with a B. S. in Mechanical Engineering, Mr. Whiteman, while with Studebaker, specialized on springs and spring controls. He has had wide experience in the use of compensating devices to improve the riding qualities of cars.

Three Firms to Merge

CHICAGO, April 28—Plans for a \$10,000,000 merger of three automobile parts and accessory manufacturers were disclosed last night. The companies involved in the consolidation are the Borg & Beck Co., Marvel Carburetor Co. and the Mechanics Machine Co., all prominently known in the industry.

At the time the plans for the consolidation were given out it was also

stated that additional manufacturers probably would be added to the new firm shortly, although no information as to their identity was offered.

Slawter Made District Head for Multibestos Co.

DETROIT, April 27—H. V. Slawter has been appointed district manager of the Eastern Pennsylvania territory for the Multibestos Co. His headquarters will be in Philadelphia.

Gates Exports Increase

DENVER, May 1—The demand abroad for American rubber automotive accessories continues steadily to grow, according to the experience of The Gates Rubber Co., which exports to over 60 countries outside the borders of the United States.

Each month since the beginning of 1928, this company has broken all previous monthly records so far as its own exports are concerned, and the year's first quarter showed a 100 per cent increase over the corresponding period in 1927.

Matheson Names De Soto Officers

Bronson, Hall, Palmer, Ballard and Pulford Now With Company

DETROIT, April 30—The appointment of a number of important executives of the De Soto Motor Corp. was announced today by Charles W. Matheson, vice-president in charge of sales.

Karl H. Bronson, advertising manager, gained his early automobile advertising experience with Dodge Brothers and Packard. He became associated with the Square D Company at Detroit in 1919 and for the last nine years has been in charge of advertising and sales promotion for that company.

C. G. Hall, director of sales development, for five years was connected with Packard as statistician and market analyst. He then joined Chevrolet in a similar capacity, and later became editor of the Chevrolet Sales Speeder. In 1925 he joined Oakland as assistant director of sales development and more recently has been sales promotion manager for Franklin.

John J. Palmer, assistant to vice-president in charge of sales, has been associated almost continuously with various automobile enterprises since 1907, when he entered the employ of the Stoddard-Dayton Company. For the past twenty years his experience has embraced practically every phase of automobile production, sales and service, including three years association with the Timken-Detroit Axle Company, and ten years with Dodge Brothers, and for the last three years holding the post of export manager.

J. L. Ballard, director of districts, in 1910 joined the Ford Motor Company, where his work was confined largely to the service division. For three years after 1917 he was service manager for the Denby Motor Truck Company, and for two years manager for the Pittsburgh distributor for Haynes. He joined Oakland in 1922 as a special sales representative and later was called to the factory as assistant to the director of field operations, and for the past year has been assistant to the Eastern and Western sales managers.

Milton Pulford, director of service, became associated with the engineering department of the Commerce Motor Car Company at Detroit in 1911. He became chief engineer in 1914 and retained that position until 1917 when he entered the United States Army as a commissioned officer in the Motor Equipment Engineering division of the Ordnance Corps.

Williams Opposes Canada S.A. Road

Marmon Head Says Coast-to-Coast Highway System Needed First

INDIANAPOLIS, April 27—While an alluring prospect is held out to motorists in the suggestion of an international highway linking Canada with the tip of the South American continent, in the opinion of G. M. Williams, president of the Marmon Motor Car Co., we should first complete our own coast-to-coast system of paved highways, "before indulging in any Pan-American dream."

"It is all very true," said Mr. Williams, "that the proposed international route would go far toward cementing friendly relations among such states as were hooked up by such a trunk line and would open up entirely new and amazing possibilities to the motor tourist."

"At the same time, we must be practical and must consider our own highway situation first. The system of paved roads extending from the Atlantic seaboard westward narrows down to an acute angle as it approaches the Mississippi Valley."

"The present jumping-off place of the West, the end of the concrete pavement, is the little town of Dover, Kansas. From that point on until the Pacific coast is reached a hiatus exists and the connecting link is formed by roads dusty and irregular at best, and at their worst, hub-deep in mud."

"Through such states as Kansas, Nebraska, South Dakota, Colorado, Wyoming, Utah, Idaho and Nevada, motoring is still an adventure, and conditions grow worse as one leaves the Mississippi and the Missouri Rivers behind him."

"There is pending in congress a bill introduced by Representative Holaday of Illinois, calling for a three-billion-dollar federal bond issue to finance the construction of a comprehensive system of hard-surfaced roads to be built and maintained by the United States. Such a highway system should be regarded not as a luxury but as a necessity."

Other authorities believe with Mr. Williams that the coast to coast highway should be accorded an early consideration.

An Automobile Show of Twenty Years Ago

LOUISVILLE, KY., April 30—An interesting item was contained in a locally reprinted news section of 20 years ago, devoted to automobiles, reading:

"Louisville's first automobile show is being arranged for April 21, 22 and 23 at the Coliseum. Cadillac, Buick, Peerless, Winton, Waverly, Stevens-Duryea, Oldsmobile, White, Packard, Ford, Pope Toledo, Pierce and Reo will be among the motors represented."

It is interesting to note that of the thirteen makes named eight are still being handled in Louisville.

McQuay-Norris Mfg. Co. Plants Now at Capacity

St. LOUIS, April 28—All plants of the McQuay-Norris Mfg. Co. are running at capacity with night shifts. The piston and pin plant at Connersville, and the piston ring plant here are hanging up new production records each day.

The company reports distributors and jobbers buying and selling in larger quantities than ever before in practically every section of the country.

Traffic Surveys Reveal Secrets

Road Doctors Through Studies Show Where to Spend Highway Money

COMMUNITIES suffering from traffic ailments are calling in highway doctors. Traffic surveys, comparable to medical examinations are revealing in positive terms what was already known in a vague way. And again these traffic studies have brought to light important facts that no one knew anything about.

Vermont, in a survey conducted by the state highway department in cooperation with the U. S. Bureau of Public Roads, found that the state roads, comprising nearly a third of the total highway mileage, carry more than four-fifths of all the traffic. The town roads embracing two thirds of the entire mileage carry but an eighth of all vehicles.

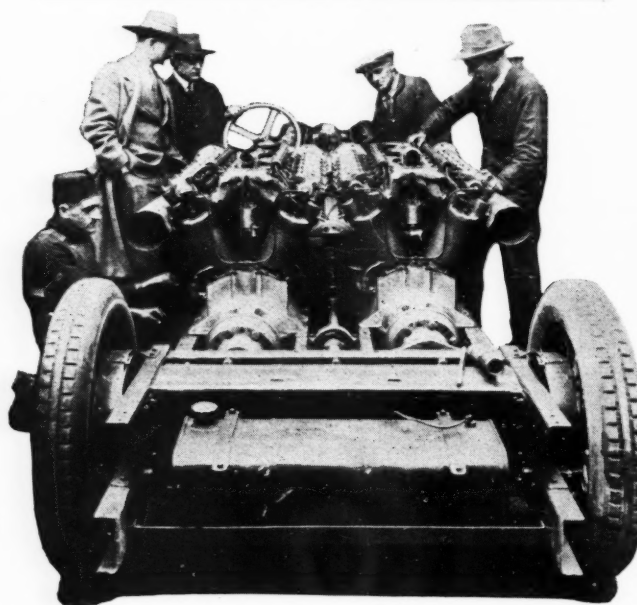
That state roads bear by far the most traffic was further evidenced by the traffic survey made in Ohio, also with the assistance of the Bureau of Public Roads. In that state, 57.7 per cent of all traffic is carried on the state highways which at present constitute about one-eighth of the road mileage.

The traffic survey not only reveals the routes that should be paved because of the heavy volume of traffic they carry at present, but also indicates future trends in highway developments and needs. The Ohio survey, for instance, brought to light that within a few years a number of roads would be carrying many more vehicles than they are now. As a result, highway plans can be laid well in advance, a thing of importance, for roads cannot be built overnight.

The Ohio studies further point out that money would be saved the state if 1220 miles of roads were to be reconstructed, 1594 miles widened, and 1707 miles of new highways built. The total cost of such an undertaking is estimated at \$100,000,000—yet when the yearly Ohio income is considered it is quite apparent that this outlay could be easily made and with everlasting benefit to the citizenry.

It is believed that many states will find it feasible to make traffic surveys.

The Record Breaker



"Spirit of Elldom" seen from the rear. This is the car in which Ray Keech drove to victory at Daytona Beach. It was built by J. M. White, wealthy sportsman of Philadelphia

Detroit Automobile Dealers' Association Heads



AND here's who they are, reading, of course, from the well-known right to the equally well-known left: James Dickson, Jr., president; B. R. Dodds, vice-president; Thomas H. Walker, director; Charles Abbott, treasurer; H. K. Chambers, secretary; J. A. Schulte, director and John F. Evans, director. All are prominently identified with the sales end of the industry and have done much for its advancement in the Michigan automotive capital. Incidentally, Mr. Schulte, general manager of Cadillac's Detroit branch and three times president of the association, celebrates the twenty-fifth anniversary of his connection with Cadillac May 3

Baltimore Car Dealers Plan State Association

BALTIMORE, MD., April 30—Plans to extend the Baltimore Automobile Trade Association, Inc., throughout Maryland, bringing the dealers into one organization under the name of the Maryland Automobile Trade Association, are under way. John E. Raine, secretary of the association, has the task of organizing the entire state in charge and already has brought about the establishment of trade bodies in some of the larger cities. Many others are scheduled to join in the movement and it is promised that by June 1 the state-wide organization will be in full force.

One of the most important functions of the new association will be to work on legislation.

17 Satisfied Dealers

ST. LOUIS, MO., April 30—"Bob" Lee, secretary of the St. Louis Automobile Dealers' Association, has accomplished the impossible—he sold a Chevrolet coach to the satisfaction of 17 dealers attending a dinner recently at Hotel Chase.

Lee, a much sought after speaker, addressed the "Chevvie" dealers and then told them he had a prospect in the person of Elmer Donnell, manager of the Associated Industries of St. Louis.

"What will we do with him since there is but one customer and 17 sellers?" Lee inquired.

Each dealer eyed the other. No one said anything.

"We will put the prospect into a hat, or rather we will put the dealers into a hat and draw a lucky number," Lee finally announced.

Accordingly the drawing was held and Donnell bought his car from the Gilliam-Epstein Co., 5929 Easton Ave., whose representative at the dinner drew the lucky number. All the other dealers were satisfied—at least they said they were.

Milwaukee Builds Own Fire Fighting Apparatus

MILWAUKEE, April 30—The city of Milwaukee is about to engage in the construction of its own fire fighting apparatus on a large scale. Work on a \$100,000 building to be known as the fire department repair shop has started. The main purpose of the building will be to build complete units, of which several have been successfully manufactured during the past two years.

Kenney Made President of Worcester Dealers

WORCESTER, April 28—Frank H. Kenney was elected president of the Worcester Automotive Association at the annual meeting recently held at the Worcester Chamber of Commerce Building. He has the distinction of being the second oldest automobile dealer in Worcester, coming next to Harry J. Murch.

Other officers chosen and elected unanimously are: Allan N. Davis, vice-president, and W. R. Livingston, secretary-treasurer. The executive committee is: H. B. Chase, chairman; Chester M. Stanley, J. C. Harvey, Richard M. Lowe and Harry J. Murch.

William T. McOwen, retiring president, who presided, thanked the members for their loyalty.

Big Garage for Atlanta

ATLANTA, April 30—Another large independent garage is to be erected in Atlanta this year, it has been announced by C. F. Palmer, prominent Atlanta capitalist and president of Palmer, Inc., the new plant to be located at Spring and Market Sts., to be five stories in height and to cost approximately \$300,000. Its capacity will be 171 automobiles. With the Ivy Street Garage, erected some three or four years ago, the Candler Garage and the new Palmer Garage, Atlanta will have three of the largest garage plants in the whole South, the three buildings together representing an investment of over \$2,000,000.

A Case of Biting the Biter

Editor MOTOR AGE:

Here's one for the boys. A dead-beat got mad at our repair charge but he finally gave us a check for the job amounting to \$102.40.

As my brother feared, it came back marked insufficient funds. It was up to me as I let the car go out. So I did a little fancy work and found this fellow had \$98.40 in bank. I then took a five spot out of my pocket and sent a messenger boy to deposit it to the d.b.'s account. Then I went down and of course the check was good.

You ought to heard the man holler. For some reason I can't figure, he goes around telling we are a couple of crooks.

Perhaps some of the boys can go and do thou likewise if you want to pass the word along.—J.McM. Chicago.

SCHRADER UNIVERSAL VALVE
(Trade Mark, registered April 30, 1895.)

NOTICE

MANUFACTURERS OF BICYCLES, AUTOMOBILES,
PNEUMATIC-TIRED VEHICLES, JOBBERS, ETC.:

In order to facilitate the obtaining of

**Parts of the
Schrader Universal Valve**



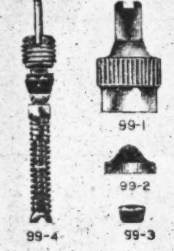
I have concluded to sell parts only to the general trade.

Parts 99-1, 99-2, 99-3, 99-4 may be had from all the
makers, or from A. SCHRADER'S SON. Price list and de-
scription of parts sent on application.

**SIMPLE AND
ABSOLUTELY AIRTIGHT**
MANUFACTURED BY

A. SCHRADER'S SON
ESTABLISHED 1844

**30 AND 32 ROSE ST.
NEW YORK, U. S. A.**

From MOTOR AGE—Issue of March 21, 1901

Hannah Heads Cincinnati District for De Soto Car

CINCINNATI, April 27—L. J. Hannah, who for several years was associated with the Hannah-Miles Co., Dodge distributor in Louisville, has been named Cincinnati district manager for the new De Soto.

Krohn and Glasson Go With Dodge Brothers

DETROIT, April 26—Henry Krohn has been appointed director of Senior Six sales by Dodge Bros., Inc., and Rex Glasson has been appointed sales promotion manager of the company.

Mr. Krohn is one of the best known sales executives in the industry. For nearly 18 years he has been general sales manager of the Paige-Detroit Motor Car Co., and upon the reorganization of that company in 1926 he was made a vice-president. He resigned recently as sales manager of the Graham-Paige Corp.

Mr. Glasson is a well known Detroit newspaper man and has been associated with the automotive industry for the past eight years. He has resigned as vice-president of Gram's Automotive Reports to assume his new connection with Dodge Bros.

An Automotive Family

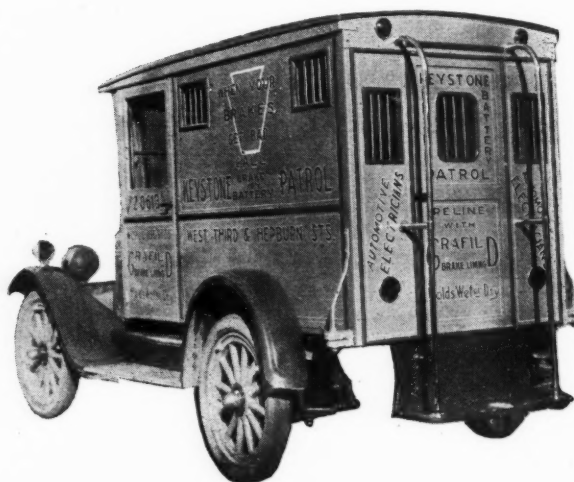
SACRAMENTO, April 30—This city has an automotive family, a father and five sons, each of whom is skilled in a separate line of automotive work.

They have formed the firm of Harris Bros., and operate a complete automotive service at 1114 Twenty-first St. The members of the firm and the departments they manage are as follows: E. I. Harris, father and manager; D. L. Harris, upholstery; C. R. Harris, painter; J. G. Harris, body builder; G. C. Harris, assembler, and Walter Harris, general shop work.

Up until a year ago the father and sons were engaged in their respective lines of work in various parts of the state. Two of the brothers found business good in Sacramento, so sent for the father who persuaded the rest of the family to move here and organize under one roof.

IN addition to a complete battery stock, this patrol wagon, owned by Keystone Brake & Battery Station, Williamsport, Pa., carries several sets of brake bands, cleaned and painted and equipped with Grafil brake lining, in which the firm specializes

Keystone Patrol Wagon



Car Production Gaining Slightly

Commerce Dept. Figures for
March Show 18,000
Unit Increase

WASHINGTON, April 28—Automobile production in the United States during March totaled 412,825 cars and trucks, compared with production in March of last year of 394,443, according to figures just announced by the U. S. Department of Commerce. The March production consisted of 371,408 passenger cars, and 41,417 trucks, being the production figures furnished the department by 160 manufacturers, 49 making passenger cars and 129 making trucks (18 making both passenger cars and trucks).

Production for the first quarter of this year shows a gain of 70,101 units, over production the first three months of last year, the total for the current quarter being 868,032 cars and trucks.

Following are itemized figures showing the production month by month with comparative figures:

		Passenger	
1926	Total	Cars	Trucks
Jan.	309,544	277,831	31,713
Feb.	364,180	325,122	39,058
Mar.	434,470	387,570	46,900
Total (3 mos.)	1,108,194	990,523	117,523
1927			
Jan.	238,927	199,650	39,277
Feb.	304,763	264,171	40,592
Mar.	*394,443	345,911	*49,532
Total (3 mos.)	938,133	809,732	128,401
1928			
Jan.	*231,693	205,543	*26,150
Feb.	*323,514	290,831	*32,683
Mar.	412,825	371,408	41,417
Total (3 mos.)	963,032	867,782	100,250
* Revised.			

* Revised.

"Reconditioned" Plugs Dumped

AC and Champion Win Suits
and "Recleaned" Sparkers
Go Overboard

NEW YORK, April 26—Thousands of "reconditioned" or "recleaned" "AC" and "Champion" spurious spark plugs, and 40,000 "AC" cartons were dumped in the Atlantic ocean, just beyond Coney Island, the other day by order of Judge Thacher, United States district court judge.

The decrees condemning the "reconditioned" spark plugs to destruction were the result of suits in equity instituted by the AC Spark Plug Co. and the Champion Spark Plug Co.

The "AC" and "Champion" companies, through their attorney, Albert M. Levert, of New York City, who is also one of the attorneys for General Motors Corp., charged that it was impossible to calculate the extent of the injury to the "AC" and "Champion" reputations and the loss of prestige and standing of "AC" and "Champion" spark plugs in the trade, by reason of the defendants' acts.

The rebuilders and reconditioners of spark plugs were charged with obtaining discarded "AC" and "Champion" spark plugs from service stations, garages, and elsewhere, and subjecting them to certain cleaning and polishing operations, and then placing them, still bearing the "AC" and "Champion" original trade-marks, in cartons resembling "AC" and "Champion" cartons, and selling them to dealers, garages, service stations, and elsewhere, at very low prices, to be resold by them to car owners who call for "AC" and "Champion" spark plugs.

"Reconditioned" by Sandblast

The plaintiffs specifically showed that these discarded spark plugs were put through a process whereby a sandblast is directed into the end of the plug against the exposed portions of the electrodes and porcelain insulator, the effect of which is to remove surface evidences of usage, but which at the same time damages the parts thus treated by destroying the glaze on the porcelain and wearing away and reducing the size of the electrodes.

The defendants were shown to have purchased these second-hand plugs from garages for from 2 to 4 cents each, and they were then sold to garages, accessory dealers and repair service stations at from 15 cents to 26 cents each, and these garages and service stations, in turn, sold them to car users at prices substantially the same as new plugs.

Jest—a Bit Cynical

By Sherman Swift

LAST Sunday, the fourth day out for the year, I was busily engaged in setting a new porthole in my motor boat—I have one of those things, too, in addition to a couple of automobiles, a Springer spaniel, a Llewellyn setter and a bicycle—when a motorist drove out onto the pier where I was perspiring and with the easy familiarity of a fellow legionnaire, asked me to lend him a tire pump and tire iron. A friend in trouble "down the road a piece" wanted to use them.

Well, I let him take the tools, but that friend of his must have had a slow leak or "down the road a piece" must mean Florida—because I haven't seen him since. "Some are like that," said a friend to whom I related the incident; "give 'em an inch and they'll give you hell." And, anyway, it isn't so much the principle of the thing as it is the cost of the tools. Manufacturers don't send them to editors with the gay abandon they used to display in handing out samples.

I have reached the point where it is my firm belief that if a law were passed making it incumbent on every motorist in America to equip his car with a pair of pliers by July 4, there'd be such a rush to get them that the plier factories would all be working 24 hours a day. Owners of the factories would go insane from trying to speed up production and every plier salesman in the country would have to find himself another job. At least 20 million would be sold. The same is true with regard to hand tools of all kinds. The motorist with a full stock of these items is still a curiosity, although the great majority, thanks to a few wide-awake dealers, have at least a jack and a couple of wrenches.

It is only fair to say that dealers as a whole are a whole lot more aggressive about selling small tools to motorists than they ever used to be, but there is still a tremendous amount of work to be done before we can say that anywhere near adequate returns are being had from this vast market.

Every manufacturer of hand tools knows this and wonders how he can get his share of the business. Some have tried to do this by advertising to the car owner through the general magazines in an endeavor to create a desire in his mind for the article advertised. No one can deny that those who have spent their money in that way have been successful in their endeavor in so far as increasing the actual sales of tools is concerned, *BUT they have been helping their competitors and not themselves!* Here is how the thing has worked out. Manufacturer "A" has advertised to the car owner and created in that car owner a desire for the jack that manufacturer "A" makes. The car owner has gone to the dealer and said, "I want a jack made by manufacturer 'A'." The dealer hasn't got it. He stocks a jack made by manufacturer "B" and the reason he stocks that jack is this: Manufacturer "B" has called it to his attention by advertising directly to him, through trade publications; the dealer has seen and tried the jack, found it satisfactory, and since he isn't duplicating lines the way that he used to do, has decided to standardize on it. So the dealer tells the car owner who asks for jack "A," that while it may be a fair product, his customers like jack "B." "It stands up in service, is easy to operate and I believe it to be the best jack at the price on the market," is what the dealer tells the customer.

Does the customer—in spite of this—demand jack "A" and go from place to place in an endeavor to buy it? He does not. All he wants is a dependable jack. He—let us say—is a specialist in arch preservers. He knows them upside down and backwards, and no one can tell him anything about them; he has sense enough to know that *the dealer is a specialist in jacks.* He trusts his judgment or he wouldn't trade with him. So he buys what the dealer tells him to buy, knowing that when the dealer has fallen arches he in turn will go to a man that knows about arch supporters. Thus we find manufacturer "A's" advertising helping manufacturer "B," and—it cannot be denied—also helping the industry. But such altruism is not very commendable because it fails to show good business acumen.

The dealer is the man who will sell small tools to the motorist. Thanks to various educational influences, he is realizing—somewhat tardily perhaps—the good profits that come to him from this type of business and, more and more, is going after that business, but before this great market can yield the profit that is there, a greater proportion of dealers must be sold. *Sell the dealer and you sell all.*

Gas, Oil and Hot Dogs—Drive In

WITH the coming of warm weather the Packard Motor Car Co. of New York has planned a special spring exhibit. But the Rowland spring company had one all winter.

Guetter Nickels is an automobile dealer in Collingdale, Pa. Obviously, his motto should be—"And save 'em after you get 'em."

Dense traffic requires adequate horns with easy means of sounding them. A car not so equipped frequently dents traffic.

SPRING fever as a human ailment "ain't so good." But with holes in some of the roads at the opening of the touring season, there is apt to be a lot of spring fever that will have to be repaired.

Spark plug interests are advocating a Spark Plug Week during which time motorists will be urged to put in new spark plugs. But any motorist should change plugs when he finds the spark plug weak.

As a permanent memorial of the long and faithful service of certain Studebaker employees, many of whom have been with that organization for 41 years, eight entrance gates and 10 main streets of the extensive South Bend factories have been named for them. Many less appreciative organizations reward their old employees by giving them the gate.

According to C. A. Triphagen, general sales manager for Reo, that company is enjoying unusually fine business. Not a cloud on the horizon—except Flying Clouds.

The restriction of the exporting of rubber from British Malay and Ceylon will be removed by Nov. 1, according to Premier Baldwin. A case of win by a hair.

Someone says the Orsinger Motor Co. of San Antonio has "gone loco?" Far from it; they've taken on the Locomobile account.

Among the items of equipment that a tourist should carry are fuses. The reason is that should a fuse blow at night the car would refuse to continue without re-fusing.

One hundred and forty-five exhibitors or thereabouts, took part in the recent All-American aircraft show. Such a development is "something to go up in the air about," opines C. E. P.

John Cleary Says—

Just as if there were not enough reasons for business failure, the psychiatrists have dug up a new one.

It is the schizoid.

A schizoid seems to be any mental complex that is not all it should be.

And, since it has been discovered by the psychiatrists, who specialize in mental diseases, its victim must be some degree of nut.

Better keep your trade-ins moving or you'll get a used-car schizoid.

Heap Big Stuff



One of the most attractive displays ever placed in a Boston sales-room was the real summer cottage, completely furnished, arranged by Manager Frank L. McNulty of the Willys-Overland retail branch. The stock model Chandler, at left, came in first in a race run in Chile. The winning driver was Carlos Fache. (Try to find him in the picture)



Ugh! Ugh! Here are the original "frontier garages" which the Indians along the western border of the Glacier National Park use to keep their floggers in during the snow months. You might call them open-work garages

A new movement, begun in Germany, is the teaching of traffic regulations in public schools. The view at right shows pupils on an inspection trip



Car Salesmen Do Make

Here is an experienced automobile man's answer to the questions propounded in the open letter published in the April 19 Issue of MOTOR AGE.

*And It is Fitting That Adequate
to the Most Important Single
Business in the*

Says Don

General Manager, Cadillac Motor

DEAR DICK: Your request for information as to selling automobiles interests me, as it has no doubt interested the other readers of MOTOR AGE who are engaged in retailing automobiles. If you want to know something about the automotive business, you are lucky in having John Cleary for an uncle and you showed good judgment in writing to him. He certainly ought to know a lot about it, if long and careful first-hand study of a subject counts for anything.

I check with everything he told you about the attractiveness of the business, but I do not wonder at the way he evades direct answers to your direct questions and passes the buck to the dealers. That seems to be one of the many privileges of an editor. Adam, the original buck-passer, would have made an ideal editor today.

But these disparagements of your Uncle John are not helping you any. I will do my best to give you a fair and unprejudiced prospectus on the automobile business as it might concern you.

Your letter stresses particularly the money end of it. This does not seem to me a fair way to look at it. There are so many other things besides money, the lack of which will destroy any possibility of your being happy in your work and, by the same token, will spoil your chances of a lasting and satisfactory connection.

The questions you should ask yourself are:

1. Am I going to be intensely interested?
2. What will it do to me in so far as my personal growth and character are concerned?
3. Can I make any money? If so, why don't all automobile salesmen make money?

Starting in on the first point, nobody ever succeeded doing something he didn't like. The bulk of any executive's time is usually spent in fitting people to jobs, and this fitting is usually consummated when the individual likes to do the work that is finally set for him to do.

To succeed in this business you must be engrossed to the exclusion of all other things. You must like your work so well that you will hate to see closing time, and your work should be so attractive that it is no longer work.

To me the selling of automobiles is the most fascinating occupation imaginable. This is true for a number of reasons. If you are an automobile salesman, you have the only merchandise known that everybody is interested in and that everybody wants. You are selling something tangible, something your customer doesn't have to die to get, something your prospect sees, something good-looking—nearly every automobile today is indeed beautiful. Your associations are

(Turn to page 26, please)



Money

*Recompense Be Given
Factor in the Greatest
World*

E. Ahrens

Car Co., Philadelphia Branch

*Don E. Ahrens,
manager of
Cadillac branch
in Philadelphia*

*Below: Salesroom
of Philadelphia
branch of the Cad-
illac Motor Car Co.*



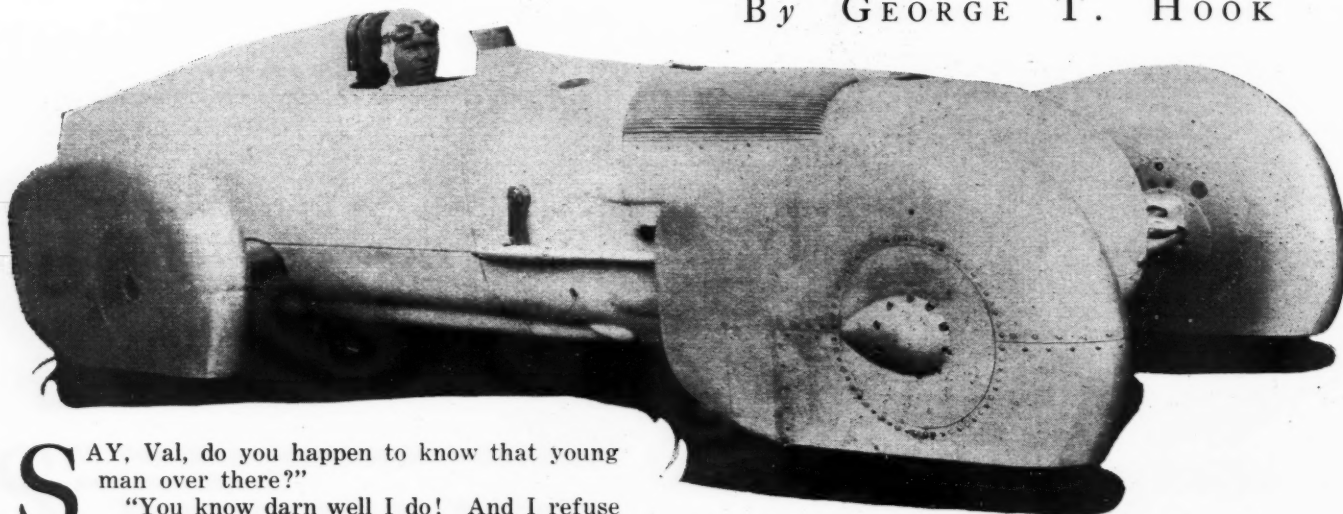


At left: Lockhart ready for a grind on the boards. Below he is seated in the racing car in which he met with a fatal accident at Daytona Beach, Fla.

Lockhart—the

He Combined the Essential Qualities of Skill, Courage and Mechanical Genius, and Was Never Fully Satisfied With the Speed His Cars Gave Him. Some Interesting Incidents in His Life

By GEORGE T. HOOK



SAY, Val, do you happen to know that young man over there?"

"You know darn well I do! And I refuse to be kidded; put up your dukes and have at!"

The dialogue is fictitious in substance but not in effect. Something of the sort was invariably pulled when a friend of both approached Val Haresnape (until recently secretary of the Contest Board of the American Automobile Association) when Frank Lockhart was in sight. Joshing under such a favorable circumstance was inevitable because it happened that Haresnape was secretary of the Contest Board in November of 1924 when it barred the then 21-year-old Lockhart from competition on the Culver City board track.

Lockhart was booked to drive in that race the Miller Special entered by him and another driver. During a practice run the machine skidded and in the accident sustained minor damage. The incident served to arouse the Contest Board, whose members put their heads together and subjected themselves to everlasting embarrassment by declaring Lockhart unqualified to participate in the race. What happened immediately afterward proved that a poor mount can offset the qualifications of the best of drivers. The car was turned over to another driver, who wrecked it in the race.

"Say, Val, do you happen to know that young man over there?"

In the three years that followed Val, the Contest Board and the public came to know Lockhart very, very well, indeed. How well was evidenced by the fact that when the result of last week's accident at Daytona Beach became known, it was generally conceded that the ideal race driver had been catapulted into eternity. To a

degree that was true of no other driver, Frank Lockhart combined the essential qualities of skill, courage and mechanical genius.

As to the latter faculty, which of the three was the least likely to come to the attention of the public, it is common knowledge among members of the racing fraternity that Lockhart attained an eminence all his own in the matter of valuable contributions to racing car building. He was a natural engineer—unschooled in the profession except by experience, but with an enviable conception of the theory of internal combustion engines.

Lockhart was never satisfied with the speed of any of his cars. He reasoned they needed but improvement to be speedier, and that is why he was forever experimenting. Wherever he raced he took with him a draughtsman and his portable machine shop, which was complete from lathe to special testing equipment such as graces the experimental laboratories of automobile manufacturers. William F. Sturm, his manager, has said that Lockhart possessed the ability to redesign any part of the standard racing car in order to put more speed into it; to see it through the drafting room; to tell the foundryman just how much metal it needed, and when it came from the foundry, to take it into his shop and machine it.

Among the many and varied improvements attributed to him is the designing and successful usage of the inner-cooling inlet manifold. This was mothered by necessity because he carried the highest supercharger

Ideal *Race* Driver

pressure of any driver: 28 lb. as against the usual 21. He is also credited with having started the use of down-draft inverted carburetors.

Every race that Lockhart entered was preceded by arduous routine. In the pit and in the shop, as on the boards, he set the pace for his crew. He demanded cleanliness and precision of his men, and paid them well. The routine consisted of putting the machine in racing shape, which, in the Lockhart sense, meant that it was never fully satisfactory when it snorted past the starter's flag. After making the engine right, attention was given the chassis. Then came the track test where-in Lockhart brought into play his remarkable driving skill. Each track was made the subject of special study. No better illustration of Lockhart's procedure in this regard can be cited than his preparation in 1926 for his first participation in the Indianapolis 500-mile classic.

Three of the turns he mastered without difficulty but on the fourth, the one leading into the home stretch, he encountered trouble. Systematically he approached his problem, worked down from the top of the bank and finally, after ruining set after set of tires, he found the spot that enabled him to take the turn without decelerating and without skidding.

The manner in which Lockhart came to participate in this race is a romance in itself. The young speed demon did his first racing on the dirt tracks of the West coast. He was 20 then and with welded up Fronty-Fords was winning races handily. Three years of dust and gravel inspired in him a yearning for bigger and

gatemanager treated him when he sought admittance to the infield garages.

"The name's Frank Lockhart you say, sonny?" queried the gatekeeper, or in words to that effect. "Well, it'll require more than that name to get you by me."

It did at the time, but not later.

Lockhart was determined to set his foot on the track to which he aspired. He walked along the outside of the track until he was opposite the pits. There he espied Riley Brett, a mechanic with whom he was acquainted. Standing nearby was William F. Sturm, newspaper and magazine writer with a particular interest in racing.

"That kid a friend of yours, Riley?" Sturm asked Brett.

"Yes, he's a coast driver and a pretty good one, we think."

"What's his name?"

"Frank Lockhart."

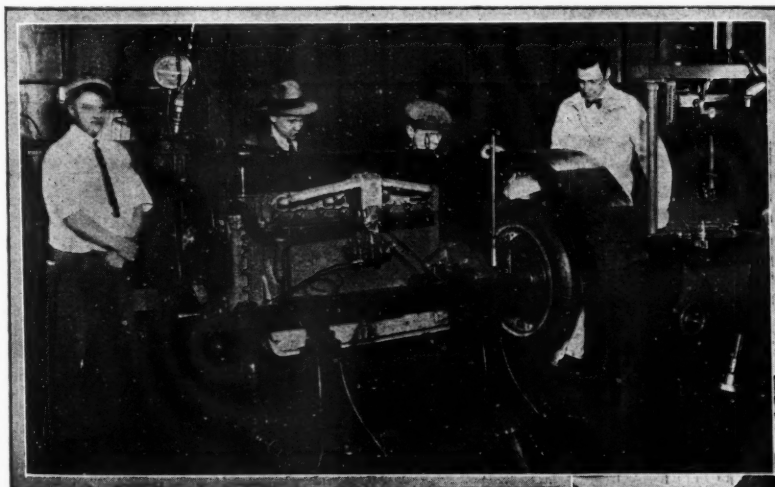
"Well, run across the track and give him my press pass and the gateman will let him across with it."

That was Lockhart's introduction to the speed Mecca and to Bill Sturm, who later became his manager.

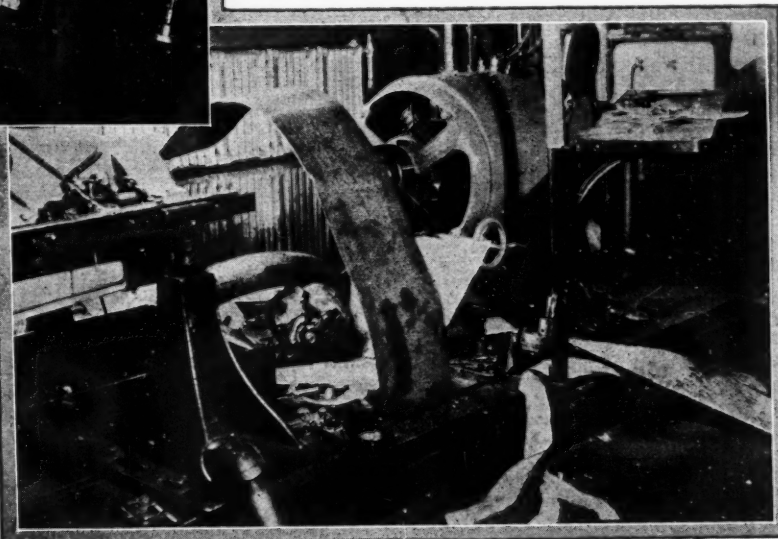
But with a foot on the track, young Lochinvar wanted to take 2½ miles—with his foot on a throttle. He was trying vainly to be taken on as a relief pilot, when Pete Kreis became laid up with pneumonia. Lockhart offered himself as a substitute and Kreis did the handsome thing, promising him his Miller mount—it was the first year of the 91½ cubic inchers—if he did not recover in time to take the wheel himself. Unfortunately for himself, but luckily for Lockhart, Kreis didn't recover in time.

In the practice runs he mastered the track, as has been related, and then came the elimination tests in which he zoomed his way into popular notice by setting a lap record which none of the old-timers could equal and which stood until May 7, 1927, when on the Atlantic City oval he achieved 147.729 miles an hour, the fastest lap ever made with any car regardless of size.

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The incident here pictured was typical of Lockhart's engineering inquisitiveness. To ascertain what might happen if a tire blew out while traveling at terrific speed, he rigged up this apparatus, revved the tire up to an equivalent of 260 m.p.h. and then gave it the contents of a shotgun. He learned plenty, as the wreckage at right reveals

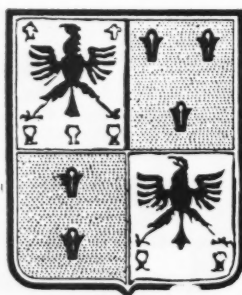


better things. So, taking with him a 183 cu. in. Miller Special which he intended to drive on the dirt tracks of the Middle West, he made for Indianapolis. He came to the track a virtual nobody, and as such the track

De Soto Seen as a

President Fields Says There is Not at This Time Any Car of Its Exact Type on the Market. New Dealer Group Will Market Chrysler Subsidiary's Product, Which Will be Non-Competitive With Other Chrysler Lines. Archaeological De Soto Discovery an Interesting Coincidence

De Soto



SIX, the new creation of Walter P. Chrysler, will be manufactured by the De Soto Motor Corp., a division of the Chrysler Corp., and will be presented to the public within the next three months. It will appeal to a different field than any of the present Chrysler products — three Sixes and a Four—all of which will be continued. De Soto executives, who are also Chrysler officials, will not relinquish their Chrysler duties. The De Soto

Six will not be marketed by the organization of merchants who sell and service Chrysler cars, but by an entirely different distributing organization. These are all the definitely known facts regarding the car which has created a profound stir in the trade and industry since the publication of its first blind advertisement in MOTOR AGE on March 22.

"The De Soto Corporation," says Mr. Chrysler, "is a division of the parent company and is owned 100 per cent by the Chrysler Corp. The new organization is composed of men of sound experience and high caliber. J. E. Fields, the president, is also vice-president in charge of sales and a director of the Chrysler Corp. He does not relinquish his Chrysler duties in becoming president of De Soto. C. W. Matheson, vice-president in charge of sales, has for years been one of the most widely known and respected sales executives in the industry. Assisting Mr. Matheson are some two score tried and seasoned district sales representatives. B. E. Hutchinson, vice-president and treasurer, also holds the same offices in the Chrysler organization. I am happy to be a director of the De Soto Motor Corp., and predict for the new organization, under the leadership of such men as Fields, Matheson and Hutchinson, an outstanding success."

Explaining the latest Chrysler manufacturing move, J. E. Fields, president of the new company, said:

"In the De Soto Six we will offer a radically new creation. It is no exaggeration to say that there is not at this time any car of its exact type on the market. This statement alone is sufficient to indicate why the De Soto Six could not logically be included as one of the Chrysler models. I am glad to reiterate Mr. Chrysler's assurance that the Chrysler Corporation will continue in the future, as in the past, to build the 52, 62, 72 and Imperial 80.

"The De Soto Six is so clearly a car for another field,

and so obviously a specialized product, that its market calls not only for a different name but for an entirely separate dealer organization. For the past several weeks a newly created executive organization, headed by Mr. Matheson, has been engaged in the allotment of territories to De Soto Six dealers.

"I am sorry that our plans do not permit me at this time to give details of the new car to the trade. Beyond stating that it is to be a six-cylinder car and stressing the fact that the progress of the past year in manufacturing efficiencies and economies has made possible a greater quality, I cannot now reveal any information as to specifications or price. In this respect, however, the trade in general, as well as the public, is quite as well informed as the new organization of De Soto dealers.

"One of the greatest tributes to a manufacturer's reputation, one of the greatest honors ever accorded to a business policy, has been the confidence expressed in Walter P. Chrysler by the group of automobile merchants who have sought the De Soto Six franchise without any specific knowledge of the car."

The disclosure of the identity of the maker adds interest to the question that has been rife in trade circles since the first blind advertisement of De Soto appeared in MOTOR AGE.

Who was De Soto?

The public has long been familiar with automobiles named after prominent figures in the exploration, development and national life of the nation. One instantly remembers such great figures of American history as Cadillac, La Fayette, La Salle and Lincoln whose deeds are enshrined in the nation's memory and whose names have been honored by the motor car industry. De Soto, one of the most notable of the great band of adventurers and explorers which opened America to our present civilization, has been overlooked up to the present.

To all school children and to those who still remember the names and dates of American history, Hernando De Soto, discoverer of the Mississippi River, is an outstanding and glamorous figure.

De Soto was primarily a conqueror of new worlds. His deeds of adventurous daring, vouched for by historians, prove him an outstanding figure in that romantic group of soldiers, explorers and discoverers which flooded the new world of America from all over Europe, subduing the Indians, searching for gold and precious stones and taking complete possession of the fields before them in the names of their royal masters.

Radically New Car

*J. E. Fields,
president of De
Soto Motor
Corp.*

*W. P. Chrysler,
board chairman,
De Soto Motor
Corp.*

*Below: Her-
nando De Soto,
Spanish ex-
plorer, getting
his first view of
the Mississippi
River*



*B. E. Hutchinson,
De Soto vice-presi-
dent and treasurer*

*C. W. Matheson,
De Soto vice-presi-
dent in charge of
sales*

Hernando De Soto was born in the village of Xeres, in Andalusia, Spain, probably in the year 1500. His parents are known to have been of noble families, though due to the poverty of his father, the conqueror

was never directly associated with the aristocratic branches of the De Soto family either in Castile or Andalusia.

(Turn to page 35, please)

CAR SALESMEN DO MAKE MONEY!

(Continued from page 21)

stimulating. You are not cooped up in some dull office. The whole city is your office. Your time will be divided between your floor days in a handsome salesroom or traveling in the new automobile to the homes and offices of interesting people. These are some of the reasons why the selling of automobiles fascinates me.

As to what it will do for your personal broadening, there is scarcely any limitation. In most businesses your relations are virtually with one kind of people. In selling some articles, you meet only one class. You are 21 now and most of your life so far has been planned for you by someone else.

In most jobs you might get, this might continue, to the partial destruction of your initiative. In automobile selling you become at once your own boss and go into business for yourself. You are an independent agent, to a great extent. You will have in competition with you some of the keenest salesmen in the world. This will sharpen your mentality. You meet, particularly in the Cadillac-La Salle price class, some of the shrewdest buyers in the city. This alone is equal to a full college course in human relationships—which is only a common sense way to define psychology.

To make good you will have to control your habits—eat right, sleep right and learn two of the most valuable things in life—the sensible ordering of each day's working time and the budgeting of your income. It is in this last respect that many automobile salesmen fail and, in so failing, impair their earning power. Working on straight commission, they have no fixed income. They are either flush or broke. They have not learned to budget on the basis of their average income for a period of years, or, better still, on the basis of their poorest year, putting their surplus income in the bank.

There are various reasons why all automobile salesmen do not make money. In the nature of things, as I have said, salesmen in our business are largely their own bosses. Now, not all men can control and handle themselves. Again, some men have little sales ability. Others have temperament—others domestic difficulties. Other have no knack for work, or don't like the kind of work, which, of course, makes it a double burden. Also, some companies, I regret to state, do not like to see their salesmen make money and do not design their compensation to that end.

Now, getting down to brass tacks, here is how we train our young salesmen. We make a careful investigation of the applicant's qualifications. After we have satisfied ourselves that the applicant has the qualifications of a salesman, we do either one of two things with him immediately—if we have any vacancies.

If he is already familiar with the automobile business and with our city, we put him on the sales force. If not, we put him in school in our Sales Promotion Department and pay him a straight salary of \$50 a week. Here he spends his time with one of our experienced men, calling on sales possibilities and learning our policies and the working of our organization. Since our retail establishment is one of the biggest in the city, this training gives him a good outlook on the business as a unit. During this period we grade the neophyte on his personality, on his ability

to create new business and, above all, on his capacity to take to the work and like it.

After he has been here from six months to a year, and we feel that he has sufficient knowledge and can exercise the correct finesse to meet exacting customers, we put him on the sales force. Here he has three executives to help him—the sales manager of the division in which he is working (Cadillac or La Salle), the general sales manager and the general manager. We see to it that he gets a fair break, we strengthen his weak points and try to throw in his direction the kind of customer we feel that he will sell best.

As a salesman he receives an advance account charged against his commissions. The scale is graduated on a yearly basis, so that on \$150,000 net business the salesman gets an income of \$9,000, plus various commissions on contests, extra bonuses on certain cars, and so forth.

With the idea of holding good salesmen in our organization by making it possible for them to earn satisfactory incomes, we limit the number of salesmen to the potential amount of business in sight, and we also carry an owner-protection system, which insures continuity of earnings and a constantly increasing clientele for the individual salesman. Please understand that we are not posing as philanthropic altruists through the operation of these policies. We consider them good business principles for the house, as well as for the salesmen.

Getting down to concrete cases, our highest salesman last year earned—and collected—around \$14,000. Our lowest salesman who had been with us over a 12-month period, earned—and collected—around \$4,000. The average paid to the salesmen who had been employed by us a year or more was slightly less than \$6,000.

In March of this year we paid \$15,570 in commissions to a force of 30 salesmen. Figure it out for yourself.

Last, but not least, not everyone has the disposition and temperament to sell automobiles. It might happen that this is your misfortune. Even though this is so, I still cannot conceive how you could spend a few years to better advantage in the way of broadening you and giving you a clear insight into human nature and an intimate knowledge of your city's business and social life, than by selling good motor cars like the Cadillac or La Salle.

Let me summarize my answers to the questions raised by your Uncle John in connection with your letter to him asking for advice:

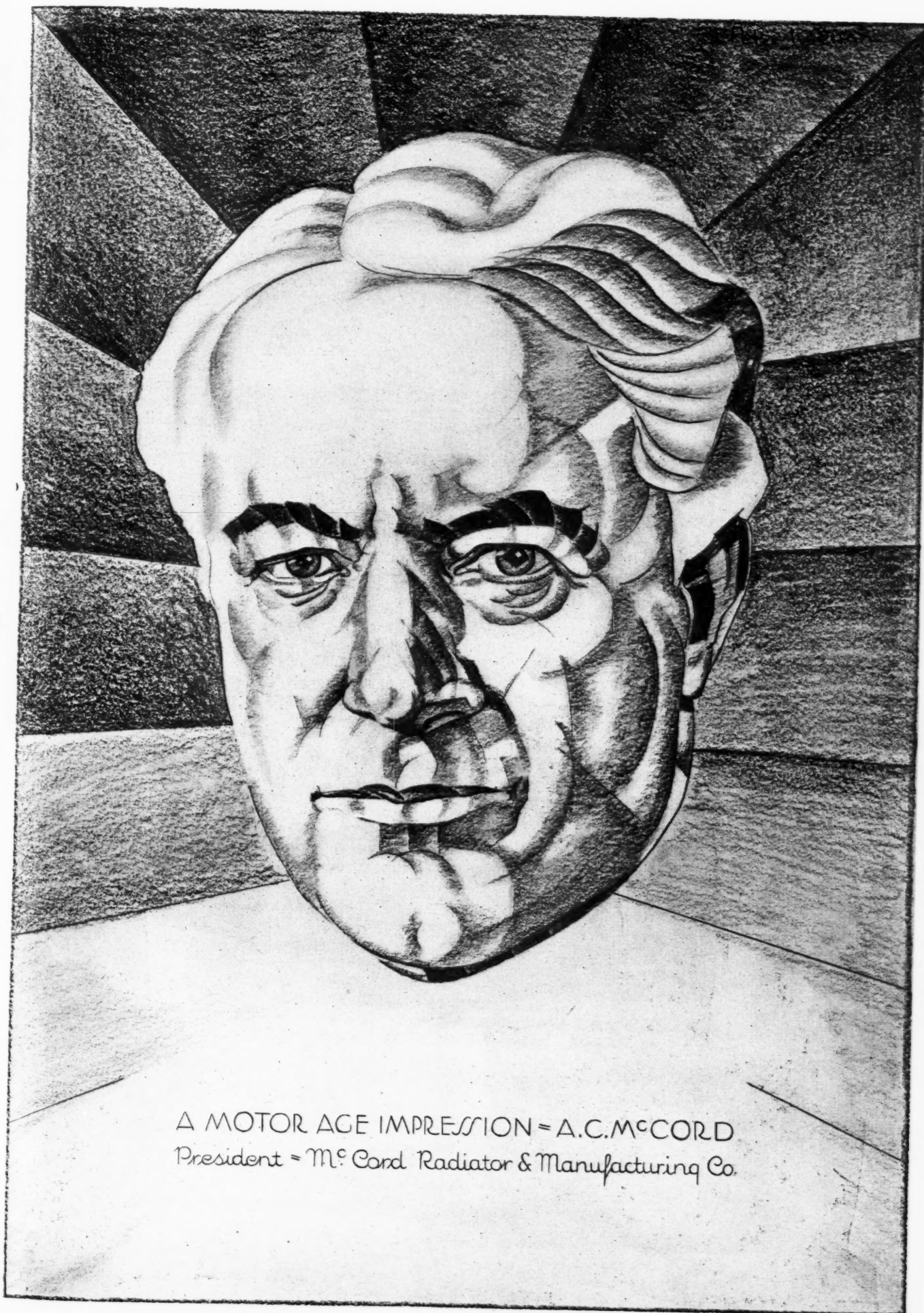
If I had a 21-year-old-son—and he had the slightest leanings toward salesmanship—I should advise him to become an automobile salesman.

If I were 21, I should ask no better start in life than the opportunity to sell a good automobile. I know I could make more money, and be more interested at that work, than at anything else.

And if, by any reason, I were looking for other employment tomorrow, I should immediately turn to what I consider the most important single element in the greatest business in the world—the selling of automobiles at retail.

Very truly yours,

Don E. Ahrens.



Marmon *Builds* Racers

TWO front-wheel-drive Marmon 68 "Specials," embodying in their construction the fruits of Earl Cooper's racing experience and the engineering ideals of Col. Howard Marmon, will be entered in the sixteenth international 500-mile race at the Indianapolis Speedway, May 30.

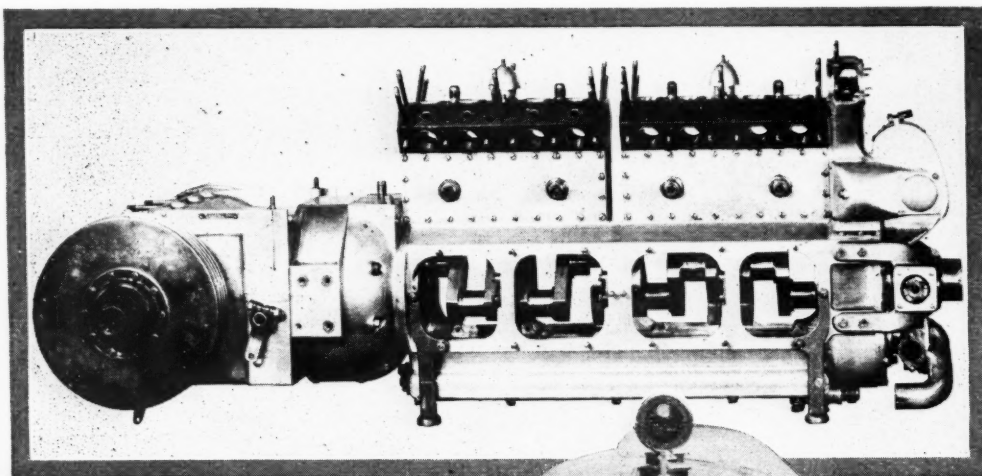
The cars will be numbered 32 and 34, the 32 after the old Marmon "Wasp" with which Ray Harroun won the first speed classic at Indianapolis in 1911, and the 34 after the Model 34 Marmon, considered by Marmon the most advanced development of its day.

Marmon has not been a participant in the Indian-

*Col. Howard Marmon and Earl
Together and Evolve Two Mar
Will Be Entered in Indian
Out Advanced Engineer*

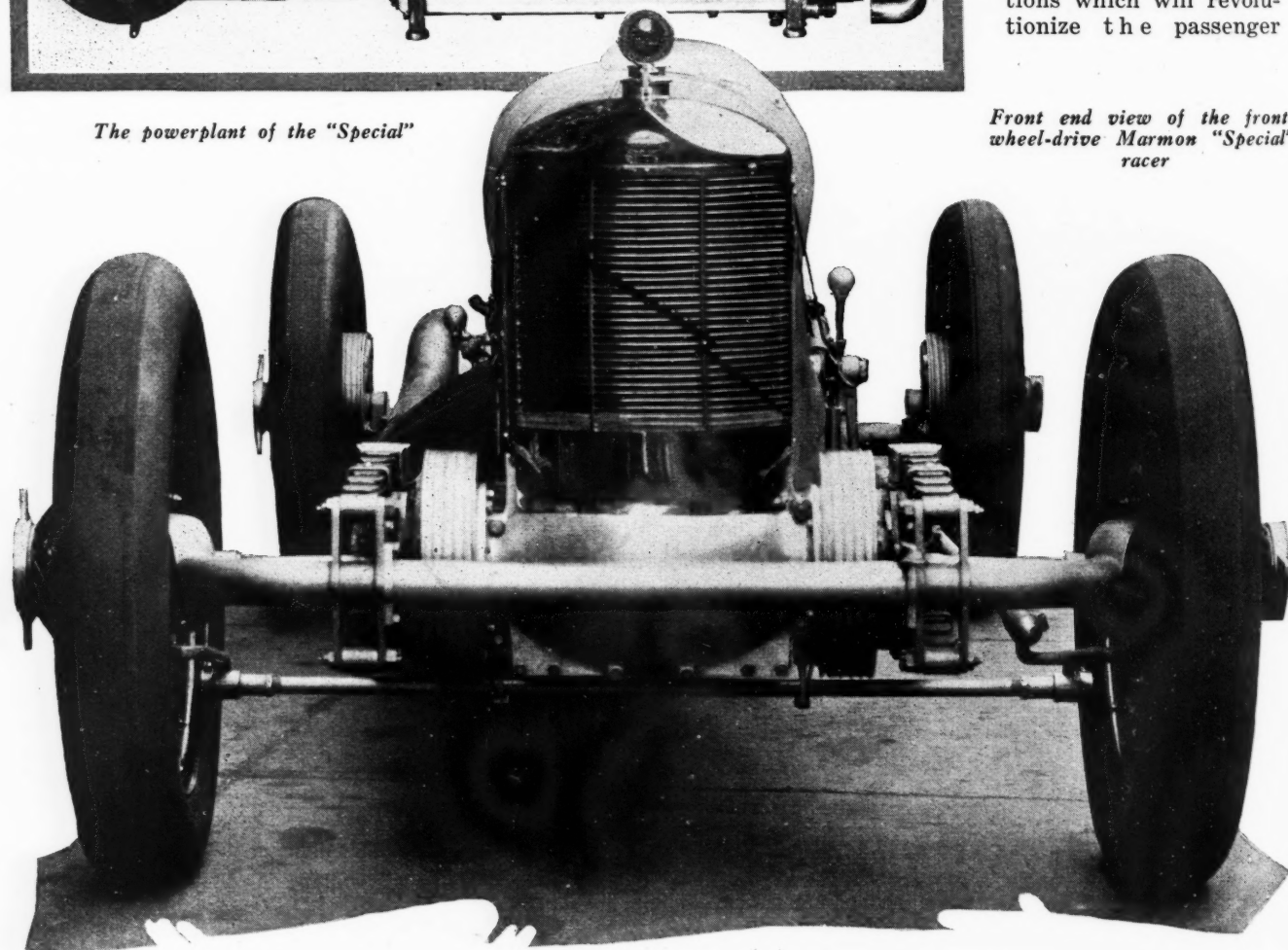
apolis races since winning the first one. The company's reasons for its re-entry in the sport are explained by Col. Marmon as follows:

"Changes in the future design of passenger automobiles are coming so fast that we decided to take some of our advanced engineering ideas to the race course to try them out. We are entering the race, not so much from a competitive standpoint, but rather because Marmon engineering research has developed many innovations which will revolutionize the passenger



The powerplant of the "Special"

Front end view of the front-wheel-drive Marmon "Special" racer



for Tests

*Cooper Put Their Heads
mon 68 "Specials" Which
apolis Classic to Try
ing Ideas*

By
M. Warren
Baker

Col. Howard Mar-
mon in the 68 and
Earl Cooper in the
"Special" racer



automobile as we know it today. We want to see just how near a state of perfection these innovations have progressed."

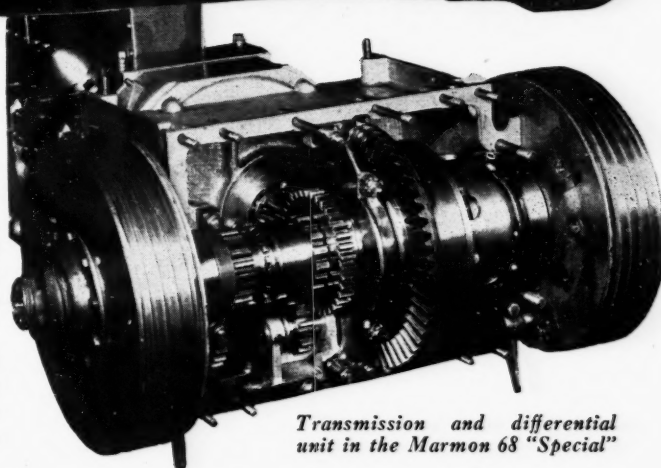
In appearance the Marmon specials closely resemble the little 91½ cu. in. race jobs that appeared on the speedway at the last two races. The radiator shell, however, incorporates the familiar Marmon pyramid and on the front is attached the lightning flash which was shown for the first time on the new 68 and 78 lines this year.

Wheelbase of the cars is 100 in., tread is 49 in., and the greatest height from the road is 42 in. Road clearance with tires inflated is approximately 6 in., allowing 1 in. clearance with the tire removed, thus preventing scraping should a tire blow.

Two forward speeds are provided, with one reverse. Bendix internal foot and hand brakes control all four wheels. Ruckstell axles and differential are used, the differential being mounted in unit with the two-speed transmission designed by Cooper and Col. Marmon. Weiss universal joints are used on both ends of the two driving shafts. The multiple dry disk clutch is positive drive in action and is mounted directly behind the transmission. The clutch case is drilled for four bolts on each side, and provides the front engine suspension when bolted to the frame.

Suspension at the rear of the engine is effected by means of a four-pronged fork, bolted to the crankcase and riding in a circular bearing mounted on a frame cross-member about the center of the car.

Double quarter-elliptic springs are used on each side of the frame in front, one above and another below the axle and bolted to drop-forged steel shackles which are welded to the axle and form an integral part of it. Rear springs are semi-elliptic and underslung. Brakes, as is usual with front-wheel-drive vehicles, are applied on driveshafts, rather than on the front wheel hubs.



*Transmission and differential
unit in the Marmon 68 "Special"*

The front axle itself is a hollow steel forging, bent to allow for projection of the transmission, and forked at each end to accommodate the driveshafts. Diameter of the axle is 2 3/16 in.

The radiator is mounted directly on the transmission housing, another rather radical departure. Capacity of the cooling system is approximately 4 gal.

An unusual feature of the powerplant is the fact that there is no manifold between the carburetor and the supercharger. The Winfield 2 in. carburetor is mounted directly behind the radiator and the gasoline is taken from the butterfly valve into the supercharger, which is driven by gear off the crankshaft at five and one-fourth times crankshaft speed.

A finned aluminum manifold fitted with an equalizer distributes the gasoline from the supercharger to the eight cylinders.

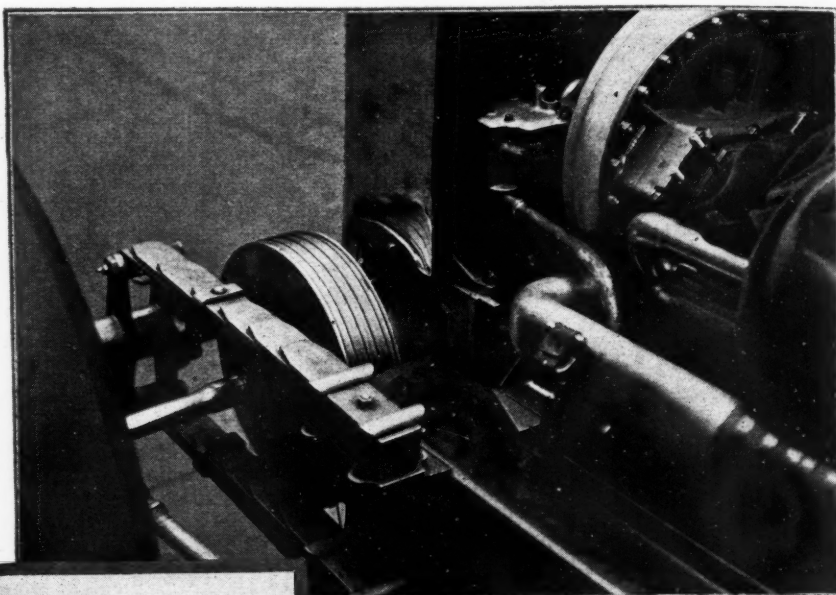
The crankcase, transmission housing, manifolds, timing gear housing and brakedrum housings are of aluminum alloy, while the supercharger housing is aluminum on one side and bronze on the other.

MARMON BUILDS RACERS FOR TESTS

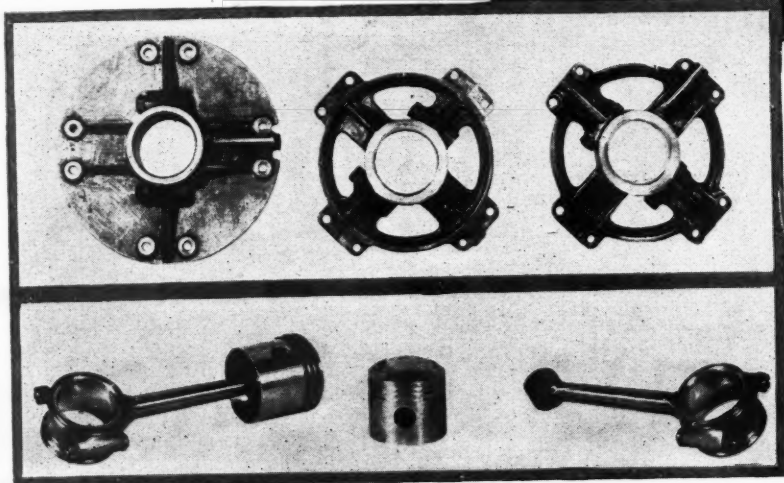
Bore and stroke of the engine is 2 3/16 by 3 in., giving a piston displacement of 90.8 cu. in. The compression ratio is 7.25 to 1 and the engine turns up between 7500 and 8000 r.p.m.

The five main bearings, with the exception of the front and rear, are built in two sections, so that they may be clamped over the counterbalanced shaft and the entire assembly inserted into the crankcase in one operation. The main bearing sections are then bolted in place in the crankcase.

Below: Main bearings, rear, intermediate and center, of Marmon racing entries. Bottom: Pistons and rods, showing relief of piston head to prevent striking



Showing springs and supercharger on the Marmon "Special"



Main bearings have a diameter of 1.86 in. and widths, from front to rear, of 2 in., 1 1/4 in., 1 3/4 in., 1 1/4 in., and 2 in. The crankshaft is drilled for oil, which is supplied to all main and connecting rod bearings under pressure. Piston pins are lubricated by splash, but the rods are drilled from the top so that the full-floating pins will be lubricated where the rod bears on them. The piston pin is held in the piston by a retaining wire resting in a groove in the pin bearing.

The connecting rods are of chrome-vanadium steel tubing and are 6 in. long from center to center. Weight of the piston and connecting rod assembly is 23 1/2 oz. Connecting rod bearings are of babbitt, cast without spinning, and the pin bearing is of bronze. The pin rides on an aluminum bearing in the piston.

Cylinders are cast with non-detachable heads in blocks of four. Cylinder heads are convex in form, while the pistons have concave heads with sections removed on each side to obviate possibility of valve striking piston heads at high speeds. Pistons are of aluminum alloy and are fitted with three Perfect Circle rings, the lower being for oil control.

Rich AES racing valves are used, having a diameter of 1 1/4 in. for both inlet and exhaust. The valves seat at an angle of 47 deg. and are actuated by two overhead camshafts gear-driven from the engine's front.

The camshafts ride on 10 bearings, and the cams actuate cup-shaped tappets, in the insides of which are contained the valve springs. The Bosch magneto is driven from the camshaft gears and beneath the magneto mounting is located the gear system by means of which the engine is started through a cranking shaft extending through the frame to the side of the car.

The oiling system is the dry-sump type, using a double, scavenging-pressure pump, fed direct from the 8 gal. supply tank in the cowl. The pump develops a pressure of about 120 lb. at high speeds. Water is circulated by a centrifugal pump driven by the oil pump shaft of the crankshaft at half crankshaft speed.

Fuel is supplied by pressure to the carburetor from the 42 gal. tank in the tail of the car, a tiny air pump driven from the intake camshaft supplying pressure to the tank. The air pump, one of Cooper's own developments, comprises a small aluminum piston actuated by an eccentric bearing at the lower end of its bronze connecting rod.

SKF annular ball bearings are used throughout the car with the exception of those in the differential, which are rollers. A Gemmer steering gear is used, with drag links and tie rods of the ball and socket type.

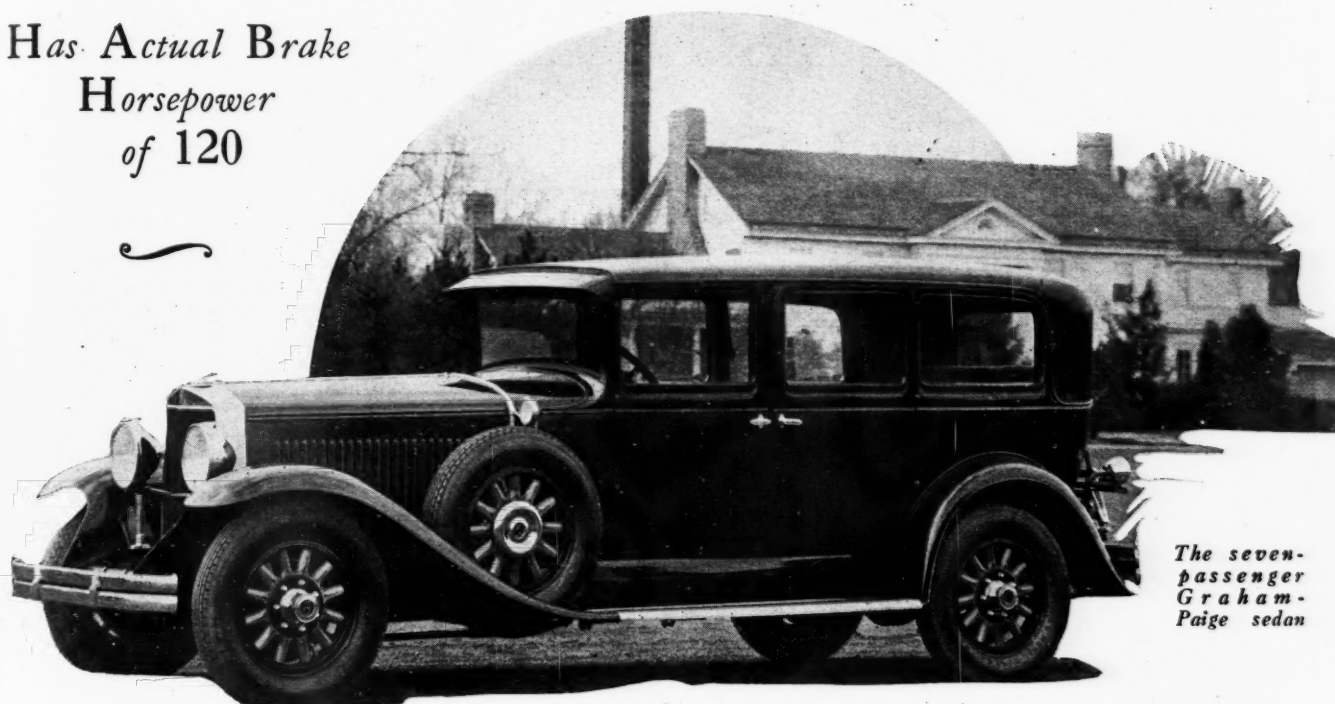
Hartford shock absorbers are fitted all around. Firestone balloon tires with smooth treads, 20 x 5.25 in size, are used on all four wheels.

The cars each weigh 1450 lb. overall without the driver.

Details in the formation of a finance company to provide Ford dealers with credit facilities in the sale of cars, are being worked out by the Guardian Trust Co. of Detroit, Guardian Detroit Bank and Guardian Detroit Co. of New York. An official announcement by the Ford Motor Co. is expected in a few days.

Graham-Paige Eight

Has Actual Brake
Horsepower
of 120



*The seven-passenger
Graham-Paige sedan*

THE new Graham-Paige Eight, previously announced, will be ready for delivery to dealers by May 10. This car completes the series of five chassis models—four sixes and one eight—that carry the name of the three Graham brothers.

In addition to phaeton and town car bodies, custom built by Le Baron, the following five standard body types are offered: Five-passenger sedan, \$2,285; five-passenger town sedan, \$2,385; seven-passenger sedan, \$2,410; rumble seat coupe, \$2,485, and rumble seat cabriolet, \$2,485.

With an actual brake horsepower of 120 the performance of these cars is outstanding. The bore of the engine is $3\frac{3}{8}$ in. which with a stroke of $4\frac{1}{2}$ in. gives a piston displacement of 322 cu. in. The horsepower rating for license purposes is 36.

Improvements in carburetion, special manifold construction and advanced cylinder head construction are said to be the main factors in obtaining the high power output.

Along with power, the engine is exceptionally smooth. Contributing to this smoothness are a crankshaft with five main bearings, all $2\frac{3}{8}$ in. in diameter and with a total length of $9\frac{5}{8}$ in., Lanchester vibration damper and aluminum alloy pistons. The engine is carried in a four-point mounting on rubber.

The drive to the rear axle is through a spring drive clutch to absorb engine vibration. The transmission has four speeds forward and one reverse. This, in connection with a high-speed, rear axle, gives high road speed with relatively low engine speed. The nat-

ural result is extreme quietness. When the car is in third speed the reduction of internal gears in the transmission is in use. In this gear the car has unusual hill-climbing and accelerating ability without the customary gear noise. In high the drive is direct.

The engine is equipped with an air cleaner, gasoline filter, oil filter and a gasoline pump operating from the camshaft. The cooling system is of liberal proportions and the water jacket extends the entire length of the cylinder bore. Temperature is controlled by a thermostat.

A Hershey coincidental lock, operated by the same key that opens the locks on the doors and on the spare tires, is standard equipment. In addition, the following is included: Six demountable wheels, wood or disk being optional; four Watson stabilators, windshield wiper, folding trunk rack and bumpers front and rear.

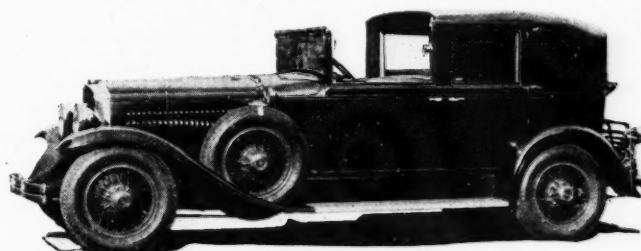
The instrument board carries gasoline gage, water temperature indicator, electric clock and cigar lighter in addition to the speedometer.

Body equipment of closed cars includes quarter reading lights, robe rail, foot rest, arm rests, toggle grips, quarter and rear curtains and smoking set.

The five-passenger sedan is finished in blue with uppers and moldings in black, striped in ivory. Either broadcloth or mohair upholstery is offered.

The seven-passenger sedan is done in light green with black uppers and moldings in ivory striping, with the same optional upholstery.

Other equally striking and attractive color combinations are available on all other models.



*Le Baron custom town car body on Graham-Paige
eight-cylinder chassis*



A SALES proving ground where actual automobile merchandising conditions can be studied from the dealer's own firing line has been introduced by Henry T. Ewald, president of the Campbell-Ewald Co., national advertising agency.

For some time past the industry has been witnessing many changes in the manner of merchandising auto-

mobiles. The manufacturer in particular has been devoting more and more attention to devising plans to help the dealer, and as a result there has been a growing tendency of closer cooperation between manufacturer and dealer. Naturally much of this work has involved the activities of the advertising agency in laying out advertising campaigns and in other diverse ways assist-

A Proving Ground to Get the Facts of Automotive Retailing

The President of a National Advertising Agency Becomes a Dealer to Study at First Hand the Day-by-Day Operation of an Average Retail Automobile Business, Adhering to Factory Policies in Sales, Advertising, Service, Accounting, Etc.

By

Lewis C. Dibble



Henry T. Ewald, president of Campbell-Ewald Co., who is operating the retailing proving ground

Exterior of the Mack-Gratiot Co., Detroit Chevrolet dealer, which is Mr. Ewald's laboratory

ing the client in formulating selling policies.

Ever since the early days of the industry Mr. Ewald has been associated with the automobile business. He has studied it closely from the angle of manufacture and production. He has gone into the problems of distribution and merchandising and naturally he has intensified upon automobile



To accomplish his purpose \$50,000 has been invested in a Chevrolet agency in Detroit. A 500-car contract has been signed, and the establishment, which operates under the name of the Mack-Gratiot Co., is located in a building which was designed especially for the purpose by the Argonaut Realty Co., a subsidiary of General Motors Corp. The entire place is equipped according to specifications laid down by the manufacturer, and Mr. Ewald hopes that from the experiment will come sufficient knowledge to more than re-

pay the investment and efforts. If the plan works as successfully as it is hoped it will, he may establish similar dealerships for other makes of car advertised through his agency.

"We have never had a proving ground to test actual merchandising problems," said Mr. Ewald, "and I thought it would be a splendid idea to establish a dealership to operate as a proving ground so that the agency might grasp by actual experience the situations

advertising. Now he says he is determined to get a first-hand picture of the retail selling situation from the angle of the dealer. To accomplish this he has become a full-fledged automobile dealer and is going to take an impartial stand to find out, if possible, just what is right and wrong with the way automobiles are sold today.

A PROVING GROUND TO GET THE FACTS

in which the automobile dealer becomes involved. It is our plan that the proving ground will give us the intimate touch with selling which ties right in with the agency's travel service."

In the case of the Campbell-Ewald Co. 25 traveling representatives are maintained who devote their entire time calling on dealers handling cars of companies which the agency serves as advertising counselor. These travelers contact and assist the dealer in placing advertising, and at the same time make a constant study of merchandising conditions in their respective territories. They report regularly to the company headquarters and act as the pulse for Campbell-Ewald in contacting the field.

"We find that our travelers are keenly interested in the entire merchandising picture. They have been getting a great deal of field information, and it is certain that they have accomplished much good in their work," said Mr. Ewald. "For instance, we know what our various accounts are doing in the field. We also know about activities of competitors, and lastly, we obtain a constant and up-to-date picture of the used-car situation."

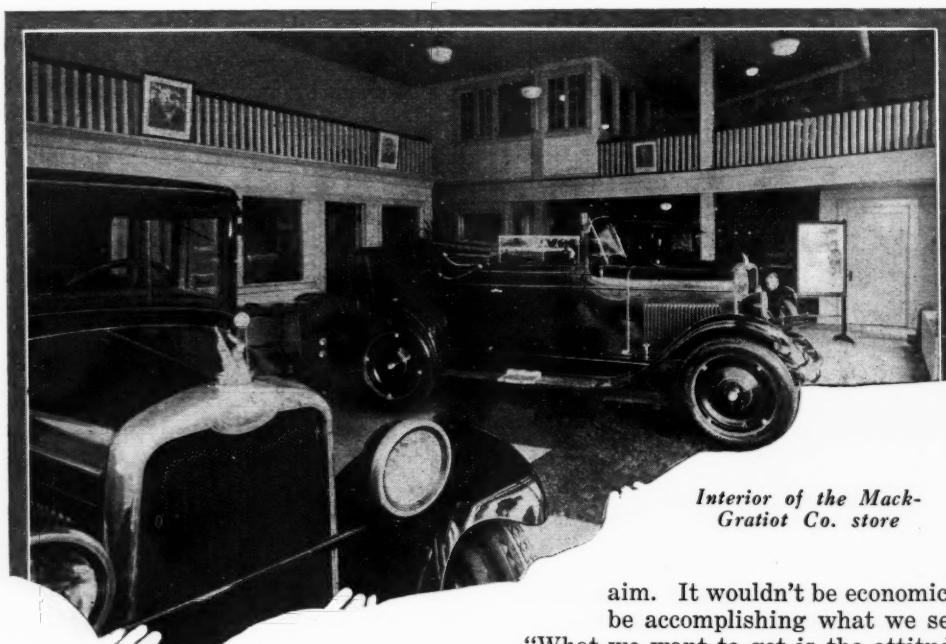
"Is it your intention," he was asked, "to try out different merchandising and advertising plans in operating the dealership?"

"Absolutely not," was Mr. Ewald's reply. "We haven't any unique or wild ideas that we will try to put over. We are going to operate absolutely on plans as laid down by the factory. We are entering the situation with an open mind and after all is said and done we hope to learn a great deal more about retail merchandising methods than we now know. This information naturally will be made available to our clients."

"As an example, we don't expect to have the most model salesmen in Detroit. Neither do we expect to have any angels in the service station, nor do we intend to dress them up in a lot of fancy suits. We want to make this purely and simply a proving ground. We want conditions to exist as they do in the average good dealership. It is our idea to conduct the place on plans laid down by the manufacturer for us to pursue, and at the same time mixing in a reasonable amount of common sense business methods of our own."

Regarding the advertising policies of the dealership, Mr. Ewald had some interesting things to say.

"We are going to run the regulation advertisements



Interior of the Mack-Gratiot Co. store

as provided in the factory's program. With our large organization it probably would be possible for us to devise a unique advertising and merchandising campaign and put on a lot of stunts that would make the dealership the talk of Detroit. But this is not our

aim. It wouldn't be economic, and we wouldn't be accomplishing what we set out to do.

"What we want to get is the attitude of mind of the dealer. If a dealer makes money he is satisfied. After all the accounting sheet with its profit and loss statement is the final analysis of business, and we want to find out just what are the factors for bringing about a satisfactory financial report. (Here Mr. Ewald drew from his desk the standard accounting form as provided by the accounting division of General Motors Corp. For the six weeks that the dealership has been operating it showed that the project has been running at a satisfactory profit.)

"To my mind this sheet is one of the most valuable services rendered to a dealer by the manufacturer. With it I find it possible for a dealer to efficiently control his business the same way that similar accounting layouts work for a large organization. With its use it doesn't take a dealer long to determine just where he stands, and already I am convinced that if a dealer follows its application closely to his business he stands little chance of going wrong.

"Here's another angle that has attracted my attention. For years we have been hearing much about the used-car problem. Various plans have been suggested as a means of clarifying the situation. Many of us have thought that we had a good idea of how used cars should be merchandised. Already I have gone out on the used-car lot and listened to salesmen work trying to sell a car. I am surprised at the number of people who are willing to gamble with a car 'as is.' A little later I am going into the used-car lot myself and try to sell them. I want to know first-hand the elements that constitute a used-car sale. Incidentally, I have learned that in Detroit it is better to offer used cars on a lot than inside a building. Buyers of this class of vehicle, it appears, would rather buy them outdoors than indoors. Another thing I am making a study of is what color sells best on used cars.

"It may sound odd, but I am already getting sales angles I never got before. As an example, I never read a dealer's contract through before. Also I have read leases, parts requirements and service standards to which I had never given real serious thought in the past.

(Turn to page 38, please)

DE SOTO SEEN AS A RADICALLY NEW CAR

(Continued from page 25)

At the age of 17 he became the protege of Don Pedro Arias d'Avila, who saw that he was educated. Returning from the University of Saragossa, De Soto had the temerity to fall in love with the beautiful Donna Isobella Bovidalla, daughter of his patron. His presumption in this matter angered the count. They quarreled, and to remove him from the possibility of captivating his daughter, the count took De Soto with him to America.

During his eight years of constant warfare among the Indians of Panama and Nicaragua, the youthful De Soto distinguished himself among his comrades by his humane treatment of the captured tribes, his chivalry and his devotion to duty. Don Pedro, history tells us, was not noted for his gentleness with the natives. But history also tells us that De Soto established a reputation for himself that was exactly the reverse of that enjoyed by his noble commander.

Don Pedro dying on this exposition, De Soto's first move was to return to Spain and marry the Donna Isobella from whom he had been almost forcibly separated by her father eight years before. But the successful culmination of his romance was not enough to satisfy his craving for adventure. The urge for further explorations continued to stir his spirit, for shortly afterward he became associated with Pizarro on the latter's expedition to Peru and Mexico. Here again there was more or less brutality and again De Soto's humane treatment of his captives and his integrity in keeping his agreements with them set him apart from his companions.

De Soto was occupied with his South American expeditions until 1538. They proved to have been excellent schooling for the activities which were in store for him, for upon his return to Spain he was given a royal commission from the king as Governor of Cuba, with special instructions to proceed to the conquest of the broad, uncharted territory then known as Florida.

Sailing from Havana, Sunday, May 18, 1538, De Soto made his landing in Tampa Bay. Here his inherent integrity and desire to deal fairly with all asserted itself again, for his first move was to make friends with the Indians. But in this he was thwarted because of the natives' distrust of all Spaniards. They refused to believe his protestations of friendship and the expedition proceeded under the handicap of more or less running warfare.

With the discovery of the Mississippi River before him, although he did not foresee it, De Soto was beset by one stroke of misfortune after another. Swamp fever ravaged his ranks and the continual attacks of hostile Indians depleted his man-power still further. There was no gold to be discovered. But De Soto, intrepid in spite of all these setbacks, forced his march continually westward where he believed the wealth of the country lay.

Pushing continually westward, driving his men before him in the face of almost insurmountable odds, preserving his expedition intact by sheer strength and leadership, De Soto passed through the present states of Georgia, South Carolina and Alabama. Progress through the primeval forest was necessarily slow, challenged at is was at every turn by the Seminoles, Cherokees, Creeks, Appalachians and other savage tribes, and it was not until 1541

that the intrepid leader reached the banks of the Mississippi. The mouth of the river had been discovered a quarter of a century earlier, but De Soto was the first to view the main body of the "Father of Waters" and claim it for the Spanish king and he is universally credited with its discovery by historians.

The discovery of the Mississippi rewarded the valiant De Soto for three years of the most grueling and discouraging work. His courage, his daring, his dominant leadership and his unflagging determination to forge ahead to success at all costs, all these were repaid when he stood on the river's bank and contemplated the vast additions which he had made to the realm of his royal master.

De Soto's work, however, was by no means finished. The river and its surrounding territory remained to be charted. With his customary vigor De Soto set about accomplishing this task at once. He marched his followers into Arkansas and penetrated the upper regions of the Mississippi as far as the Missouri river.

De Soto's greatest triumph was short lived, for in 1543, while still in the vicinity of the Mississippi, he was seized with swamp fever and died. The progress of the expedition was at an end, but its work had been accomplished. Because they feared the Indians would desecrate the grave of their leader, the Spaniards buried him secretly. Some maintain that his body was sunk in the waters of the great river he had discovered, and that is the most popular romantic conception. Others say that he was buried at night in a deep pit. Still others hold that after the pit burial, his body was exhumed, placed in the hollowed-out log of a great oak tree, and sunk in the river. Thus both tales are given credibility.

Thus Hernando De Soto, most sagacious, daring, humane, and determined of the first explorers of America, lived, wrought and died. A great man in a great age. He did things, did them well and carried out his plans effectively in the face of staggering difficulties. That his name, flaming as it does across the panorama of primitive American history, should be chosen as the name of a new motor car is eminently fitting. And its selection prompts the thought that the strength, integrity and undiminished vigor of the conqueror of new worlds were the inspiration of the builders of the De Soto Six which bears his name.

There was an extraordinary news coincidence in connection with the initial announcement of the De Soto Six. The first trade announcement appeared in *MOTOR AGE*, issue of March 22. This was a so-called blind advertisement, containing the single word, De Soto. Four days later there appeared in an Associated Press dispatch the story of the discovery, in Carters, Georgia, of the hilt, guard and part of the blade of an iron sword which was once the possession of De Soto.

That this archaeological find should have been made simultaneously with the initial advertising of the De Soto Six, named—as were the Cadillac and La Salle—in commemoration of one of the heroic figures of early American discovery, is one of those coincidences so remarkable that it might almost be supposed that the discovery by Dr. Warren K. Moorehead, head of the department of archaeology of Phillips Academy, Andover, Mass., was prearranged.

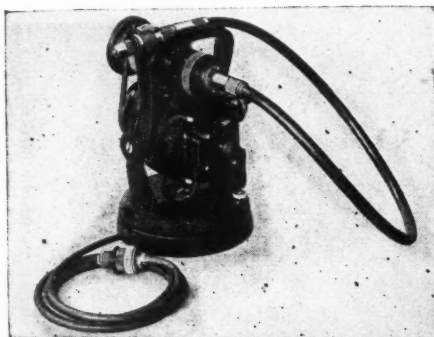
The Latest in Equipment for

Flexible Shaft Machine

THE device shown in the illustration is a product of the Coates Clipper & Mfg. Co. of Worcester, Mass., and is known as the Coates Senior "AA" Flexishaft. It has a range of speed changes of 900-1725-3450 r.p.m., to cover its varied as well as continuous use, as screw driving can be done at lower speeds and grinding and buffing in the higher ranges.

This device has a cast iron base, and yoke and handle are assembled to make the complete mount. The handle carries the motor and three-speed cone and spindle, which latter is eccentrically set in a sleeve with a spring to give the belt the proper tension and to facilitate shifting.

It has a motor of $\frac{1}{4}$ hp., 110 volts, 60 cycles, single phase, with 10 ft. of rubber-covered cable and attachment plug for lamp socket.

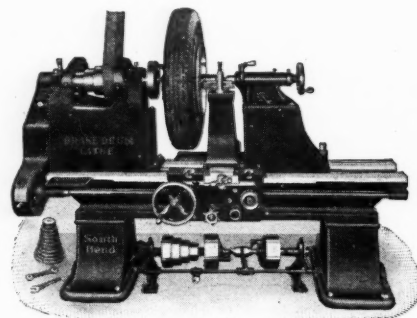


The steel wire cable shaft is 4 ft. long and $\frac{3}{8}$ in. in diameter, covered with black japanned metallic casing $\frac{3}{4}$ in. outside diameter. The outside end connections are nickel plated, and the hand piece is nickel plated with knurled grip and ball bearing spindle. The spindle nose is threaded $\frac{5}{8}$ in. by 18 for a chuck or other connection. It has a 3-jaw drill chuck of $\frac{1}{4}$ in. capacity. It weighs 62 lb., and has dimensions of 16 by 16 by 14 in. The price is \$110. Tools and wheels are extra.

Brake Drum Lathe

THE South Bend brake drum lathe is complete with arbors and tools and can handle all kinds of brake drum jobs including the internal expanding and external contracting types of both the two and four-brake cars. The illustration shows the No. 2 size brake drum lathe which handles wheels up to 33 in. in diameter. This can be adjusted to take dual wheels 30 in. in

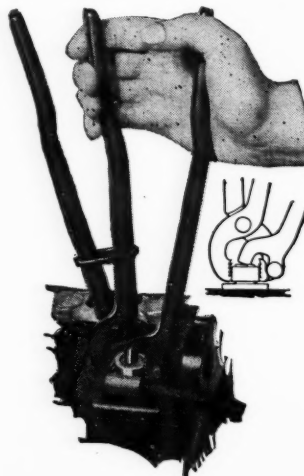
width. The wheel with the brake drum attached is held in the true position by means of an arbor. This arbor acts as



a temporary or substitute axle during the machining process. The arbor for the front wheel has two adjustable taper cones which fit tightly into each side of the hub against the bearing races, the same as the cones would when in use with the wheel. Adjustable collars on the arbor which are held tight by the end retaining nut, hold the taper cones firmly, thus causing the wheel to remain at a right angle to the arbor, and the brake drum concentric with the axis of the wheel hub or axle. With the wheel so held on the arbor it will run true for the machining of the brake drum when mounted between centers on the brake drum lathe. The South Bend Lathe Works, makers of this and other types of lathe, is located at 877 E. Madison St., South Bend, Ind.

Battery Terminal Tongs

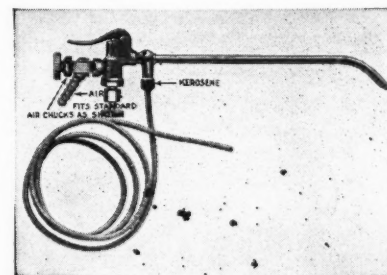
THE MARQUETTE MFG. CO., of St. Paul, Minn., is now offering to the trade a new tool for removing post-type terminal connections, which they claim to be the only tool that does not have to go under the terminal. They



state that no matter how corroded or frozen, or how stubbornly the terminals resist ordinary methods, these tongs will move them quickly. With their use there is no chance to damage the battery cover, as they grip the terminal connection between the jaws and when the third lever is drawn up the job is done, and without injury to the connection. The tongs are made of dropped forged steel, weigh $2\frac{1}{2}$ lb., and are 13 in. long. The net price to dealers is \$1.90 each.

Engine and Chassis Cleaner

THE American Motor and Chassis Cleaner is an efficient and rugged device that quickly removes dirt and grease from engine and chassis parts. It is also speedy and economical for spray lubrication of automobile springs. It combines a heavy cast-bronze air valve with an ejector for drawing the kerosene used in cleaning, or the oil used in lubricating, up to the



nozzle. Here it is combined with the air from an ordinary air compressor and delivered at the desired pressure for cleaning or oiling. This cleaner is made entirely of brass and bronze and consequently may be used with various alkali cleaning preparations, kerosene, gasoline, used crank-case oil, or penetrating oil. It is furnished complete with 6 ft. of flexible metallic conduit and a universal coupling device to fit all standard air chucks. It is made by the American Injector Co. of Detroit, Mich.

Glass Service Booklet

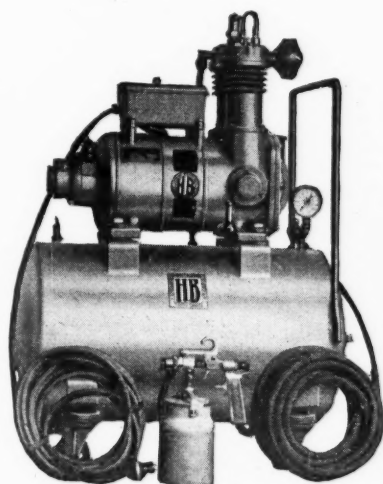
HENRY G. LANGE MACHINE WORKS, 166 North May Street, Chicago, Ill., is putting out a booklet which is a thorough study of glass edging and the care of grinding wheels, etc. Care has been taken to cover all the minute details of glass edging, and comprehensive data is supplied on the proper care of equipment. The booklet sells for 35c.

the Automotive Service Shop

Portable Paint Spray

TWO new paint spraying outfits for either continuous or intermittent spraying have recently been put on the market by the Hobart Bros. Co., Troy, Ohio. The No. 72 combination is designed for continuous operation. This consists of a No. 66 compressor and a No. 68 spray group. The No. 66 portable paint spray compressor has a capacity of 8½ cu. ft. and is designed for continuous operation with the large size spray gun. The No. 68 spray group consists of the new type AV large size spray gun with standard quart size aluminum cup. The transformer combines moisture extractor and pressure regulator. One 25 ft. length of tested air hose with fittings is furnished. The price of this complete, continuous-duty spraying combination is \$259.30.

The No. 73 combination is designed for intermittent spray painting or touch-up work. It includes the No. 67 compressor with a capacity of 6 cu. ft. This is not designed for continuous volume work. The No. 69 spray group recommended for use with this compressor, includes the Type A medium size spray gun with quart size aluminum cup and 25 ft. of tested air hose. The price of this equipment is \$188.30,

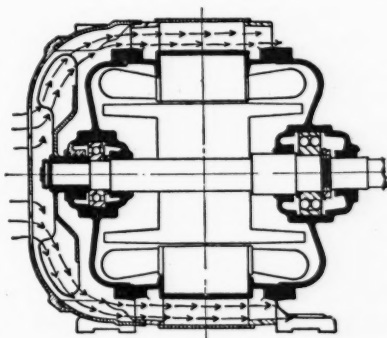


complete, f.o.b. Troy, Ohio. Both of these jobs are driven by the HB ball bearing electric motor, designed and built especially for this kind of service. Power from the motor is transmitted to the compressors by a silent, spiral bevel transmission running in oil. Compressors are twin-cylinder, air-cooled, vertical, splash lubricated. The tanks are of heavy gage steel plate and comply with all state and municipal codes.

Fittings include pressure gage, oil gage, oil and moisture drain, air filter, safety valves, toggle joint switch and 25 ft. of heavily rubber covered extension electric cable with attachment plug. Both of these units are portable, being equipped with four sturdy metal castors with swivel mountings electrically welded to the tank.

Air-Jacketed Motors

A NEW electric motor developed by the Wagner Electric Corp. of St. Louis, Mo., is so enclosed that moisture, dust or fumes cannot enter it. The entire motor is surrounded by a jacket open at both ends with fan blades on a shaft extension between the sealed



motor and the outer jacket. The only clearance between rotating and stationary parts of the motor is in the bearing housing, and here no foreign matter can get past the grease packing.

These motors are new in external construction only, no changes having been made in the electrical principles of the motors themselves. The frame housing, the motor proper and all bearings are substantially air tight. The end shield is made of cast iron, rib reinforced and has a substantial grating which protects the fan and provides an opening for incoming ventilating air. The center shield is made of heavy sheet steel, held in place by slot head bolts. The fan is of one-piece construction. The conduit box is mountable in four positions.

The stator is the only part of the standard single phase repulsion-induction and polyphase squirrel cage motors subject to change in design. The exposed outer rim is deeply grooved to increase radiation surface. The punching for windings remains unchanged. The stator laminae are welded together to lessen vibration and reduce magnetic noises. Such a design reduces

hysteresis loss to a minimum.

These motors use double row ball bearings, self-aligning in one end plate with a deep groove in the other end to take end thrust. Bearings are grease lubricated, sealed in dust-proof housing. Single-phase repulsion-induction motors may be had in sizes from one to 20 hp. and polyphase squirrel cage motors in sizes from two to 30 hp. One use of such a motor of particular interest to automotive service stations is for the operation of ventilating fans in nitro-cellulose finish spraying booths or rooms.

New Spray Gun

THE Presto Spray Gun is an all-electric paint spray gun complete with motor-driven air compressor, spray nozzle and container all in one unit. It is easy to handle, as it weighs but 5 lb., and simple to operate, as the pulling of the trigger switch in pistol grip handle starts painting or lacquering. This gun may be plugged in any convenient electric light socket as it may be used on either direct or alternating current. The attached container holds the color to be used, and the device should be held like a gun at about 6 to 8 in. away from article to be sprayed. This gun



is designed to apply both smooth and crackle finish lacquers on either wood or metal. The dealer's price for the Presto Spray Gun, complete with one container as shown, and set of six extra containers in box, is \$35. Extra containers, per dozen, \$1.60. It is manufactured by the Metal Specialties Manufacturing Co., 338-352 N. Kedzie Ave., Chicago, Ill.

LOCKHART—THE IDEAL RACE DRIVER

(Continued from page 23)

It is common race history that Frank Lockhart won the first Indianapolis race in which he drove, and from that moment became a speedway star of the first magnitude.

Success on the boards did not keep him off the dirt, however. On Sept. 25, 1927, he drove in a 100-mile race on a mile dirt oval track at Cleveland and set new dirt track records from 1 mile to 100 miles. His qualification lap with a flying start was made at a speed of 92.45 m.p.h. He was so far out in the lead that he stopped his car, donned wraps against the cold weather, and finished the 100 miles in front at an average speed of 80.817 m.p.h.

It was on a dirt track an incident occurred that served to furnish proof of the thorough manner in which Lockhart knew his car. After one race he noticed that his mount was not riding right. So he tore down the chassis and on the spring shackle bolt and king bolt bushings he found formations of calcium chloride, with which dirt tracks are surfaced.

A particularly impressive example of Lockhart's insatiable inquisitiveness developed when he was building the car in which he rode to his death. He asked himself:

What am I to expect will happen if a tire blows out while traveling at terrific speed? He rigged a tire to an engine, "revved" it up to the equivalent of 260 m.p.h., and from a point of safety gave it the contents of a shotgun. The result almost wrecked his workshop but gave him the information he sought. Costly, but convincing!

Lockhart held many records but he was never known to boast of them, nor to take all of the credit for them. It was his habit to give his car the laurels. On the boards he played to the crowd, but in his workshop he disliked to play to outsiders. Visitors were not welcome there because they distracted him. Being gentle by nature he delegated to his associates the task of sending visitors on their way.

He was interested in airplanes and several months ago declared to a friend with aviation experience that he intended to acquire a ship. At the time he looked with favor upon the suggestion that he hire a mechanic who was also a pilot, and have him double up as automobile mechanic and flying instructor. Like his desire to hold the world's speed record, it was a dream that didn't come true.

A Proving Ground to Get the Facts of Automotive Retailing

(Continued from page 34)

"The one thing, to date, that has struck me as most unusual is the completeness of the service rendered to the dealer by the automobile manufacturer. As an example, if I had wanted to open a drug store, hardware store or any other kind of business, it would have been necessary for me to go outside and engage some person thoroughly experienced in such procedure. But in entering the automobile business I found an entirely different situation existing. The manufacturer, through his sales organization, made suggestions on just what equipment I would need for the storing of parts and also made a complete list of the parts stock I would need to carry. Then I was provided with the information which made it possible for us to install modern and efficient shop equipment. Next the company came forward with a wide variety of information telling us how to merchandise and service cars, and also provided much valuable material on used-car reconditioning and selling. We were given a complete break-down of the population in our district by nationalities, and were also furnished with figures showing the potential car market that we served. Then the corporation came forward and installed the standard accounting service. As a result of all this I have sometimes wondered if the manufacturer isn't perhaps doing too much for the dealer. I have wondered if in making the system so complete the car maker isn't making it too easy for the dealer with the result that many of them sort of take things for granted and lay down on the job. Then I wonder if the dealer fully appreciates all that the manufacturer is trying to do for his welfare. Surely, in no other business does the manufacturer go to such lengths to help work out the retailing problems of his outlets.

"It is not our intention to go out and change the fundamentals of selling. Far from it. What I do have in mind, however, is devising ways and means of refining these fundamentals and not trying to find ways to change them. We are also out to find ways and means of creating a closer relation and better understanding

between the automobile dealer and the manufacturer.

"I've got a different angle already on the man who works on cars. I am beginning to know used-car language, and when I get through with this experience I hope there won't be a thing in retail merchandising that I cannot talk about in the same language with the experienced dealer.

"I don't see how we can go wrong in this venture if we mix some common sense with what the factory wants. We intend and hope that the dealership will make money. If it doesn't, I'll more than make up the loss in valuable experience gained."

Fine Arts and the Automobile

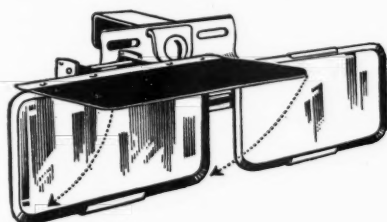
THE creative energy that Greece poured into her temples, the affectionate detail of the Flemish masters, and the epic fidelity of the Nibelungs have combined in America to make the automobile. No longer is it merely a mode of transportation; it has become the acknowledged symbol of our civilization, the focus of our imaginative life. Even those who wish it were otherwise cannot deny that the keen, beautiful fact of the automobile cuts deeper into their esthetic core than most contemporary art.

The price war of the automobile Titans, vigorously prosecuted along steel-drawn battle lines, is claiming the best creative energy of the age. Few modern lyrics seem important beside a 115 hp. motor, humming at top speed without spilling a drop from the full glass of water placed on its cylinder-head. Few representations of life-in-action are as exhilarating or colorful as an arrowy roadster taking a canon grade in high. Immediacy and power have always been the most desired qualities of any art—and in the automobile we have the apotheosis of both. If our fine arts are suffering from pernicious anemia—as obviously they are—it is probably because the white corpuscles of originality and power are all battling for supremacy in the automotive industry.—*Century, April, 1928, Table Talk.*

The Latest in Accessories

Duplex Mirror

THE Mack duplex mirror, as will be seen, is two substantial mirrors on a rigid bracket. This bracket will fit any car, either open or closed. By being made in two sections the Maco Duplex provides rear vision for both front seat passengers. The glass is selected plate, carefully beveled and polished. It is silvered by the Maco hot process which assures clear vision and durability. While this mirror is made



for night service, it is not a so-called non-glare mirror. Its non-glare feature consists of a night shade. As will be seen in the illustration, this shade remains in the raised position when not needed and can be readily dropped to cover the mirror when glaring headlights to the rear would interfere with safe or comfortable driving. Model No. 3 is black enameled and sells for \$1. Model No. 4 is nickel plated and sells for \$1.25. Both of these are equipped with the night shade. The Maco Manufacturing Co., Inc., is located at 1440 E. 19th St., Indianapolis, Ind.

Safety Reflector

THE "Amber Eye" is the name of a new safety reflector being manufactured by Hunt & Moore, Inc., of New Haven, Conn. This reflector is for installation on the bracket under the license plate on the rear of the automobile. It picks up rays from the headlights of cars approaching from the rear so that the car with the "Amber Eye" is visible under all conditions. The "Amber Eye" is heavy amber glass which is pressed into the metal holder with a shock absorbing strip which pre-

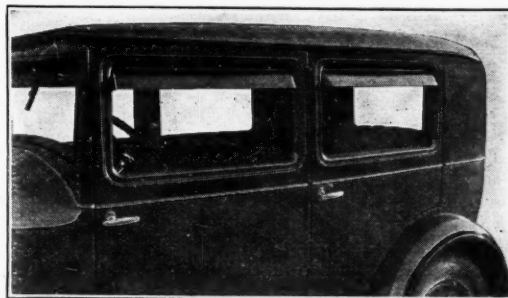


vents breakage from jar or vibration. It has an outside dimension of 5¼ in. This accessory is also made in red or green, to conform with various state regulations. The list price is \$2.50, including bracket, bolt and lock washers. These reflectors are packed in individual display boxes with 10 to a carton. This product is being sold by the Zinke Co., 1323 S. Michigan Ave., Chicago, Ill.

Window Ventilating Visors

THE elimination of draft and sun glare are the outstanding virtues of the Shade-A-Lator storm and sun shield ventilators. These are made by Protex-A-Motor Mfg. Co., Pittston, Pa.

The construction of Shade-A-Lator drives the draft immediately to the top of the car, eliminating a draft on the car occupants entirely. With this equipment it is also



possible to drive head on into snow or rainstorms with windows lowered 2½ in. without any moisture coming in the car.

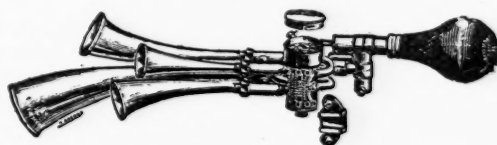
Because of the adjustable feature of this device it reduces the investment on the part of the distributor and dealer to the minimum as they only have to carry two sizes in stock. The No. 2 size fits approximately 91 per cent of all closed cars.

It is said that these can be installed in less than five minutes per pair. That this is a reasonable length of time will be appreciated when it is realized that the installation requires the drilling of no holes and that the window frames are not marred or disturbed in any way. Pliers are the only tools required for the installation.

The Shade-A-Lator locks automatically into place and cannot rattle or become loose, and permits the complete closing of the windows. These ventilating visors sell for \$5 a pair without installation charge, which, however, is very small.

Bulb Horn

LE TESTOPHONE is said to be the official French horn. Its construction is quite unique. It consists of a large rubber bulb and a rotary valve, that is actuated by a plunger. Each time the bulb is pressed, the plunger moves the rotary valve, thus causing different combinations of tone. This warning signal consists in reality of four horns assembled as one unit. By means of a controlling disk one can change at will the combinations resulting from the movement of the rotary valve, or can lock the valve to prevent



further rotations. This horn is distributed in America by George E. Schweig & Co., 2829 N. Broad St., Philadelphia, Pa.

Radiator Ornaments

A VERY unusual radiator ornament is the animated Indian, a product of the Wiggler Co., 2355 Main St., Buffalo, N. Y. This animated Indian swivels on a ball bearing base, and under the influence of the breeze created by the car, or natural wind, turns first in one direction and then in another, thus creating a most unusual sensation. The list price of this product is \$2.75.

Another radiator ornament designed particularly for the new Chevrolet or



the Model A Ford, is the winged horse. This model is priced at \$2.50.

READERS' CLEARING HOUSE

Questions Answered By C. Edward Packer

Ford Electrolock Service

I would like to get any information that I can on the circuits in the Ford Electrolock. Will you also please give me any available information on shooting trouble in this unit.—A.L.M., Los Angeles, Calif.

WE are showing a sketch that makes clear the internal circuits as well as the external circuits used in connection with the Electrolock. The ignition switch mounted on the instrument panel at the left of the dash light is a combination switch and theft-proof lock. When the lock cylinder is "in" the ignition circuit is broken and the car is locked. To unlock the switch, turn the key one-fourth turn to the right, at which time the locked cylinder springs out and closes the ignition circuit. The key is not required to lock the car and should be removed after the operation of unlocking is completed. This will prevent noise and marring of the instrument panel. To lock the switch, press the cylinder completely in and be sure that it stays in.

Mechanical protection for the switch to distributor wire is accomplished by inclosing the wire in a steel cable. The grounding of the ignition switch takes place both through the lock casing and through the attachment at the distributor. You will notice in the illustration how this is accomplished.

Should ignition trouble develop, check battery connection, also yellow wire from terminal box to starting motor

and black wire from terminal box to coil, also red wire from coil to switch. If these connections and wires are O.K. check the switch as follows: Remove the four screws which hold the instrument panel in place and pull the panel back. Disconnect wire at the terminal on the back of the Electrolock. The switch may then be tested in the following manner by using a single circuit and test lamp: First, with the breaker points in the distributor open, place one test point on the primary terminal inside of the distributor and the other test point on the switch terminal on the Electrolock. With the switch *unlocked* the test lamp *should light*. With the switch *locked* the lamp *should not light*.

The second test consists of placing one test point on the primary terminal within the distributor as before, and the other point on the outside housing of the Electrolock. With the switch locked, the lamp should burn. With the switch unlocked, the lamp should not burn. If the lamp lights with the switch locked as described in the first test, or if the lamp lights with the switch unlocked as outlined in the second test, there is either a ground in the switch or the distributor condenser is shorted or grounded and it will be necessary to disconnect the condenser from the distributor to determine whether the trouble is in the switch or the condenser.

To Clean Up on Radiator Cleaning

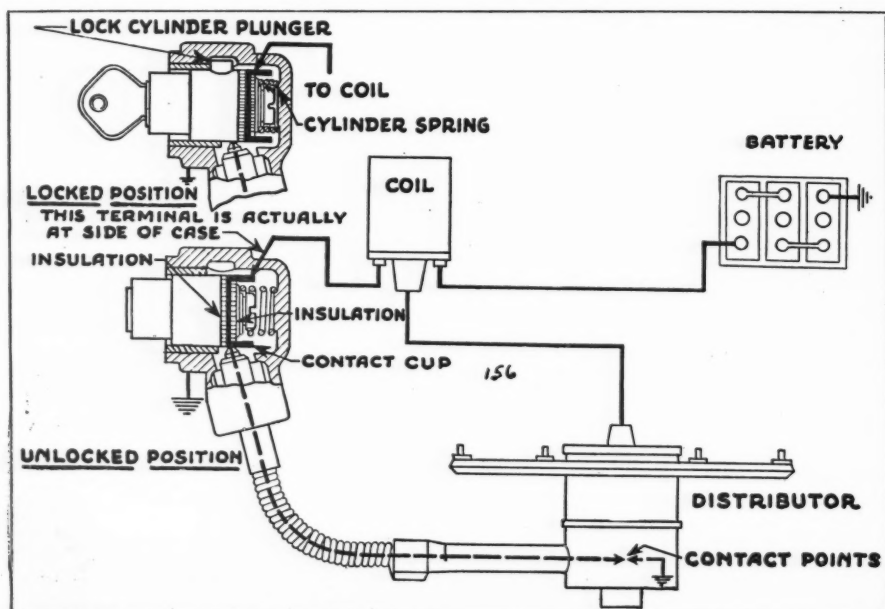
We would be very pleased if you could supply us with some information as to the quickest and best way to clean a radiator. There is no radiator shop in our town and we have a great deal of tourist trade requiring just that service.—Klotz & Cook, Vacaville, Calif.

YOU are probably familiar, of course, with the old method of putting in about one pound of regular sal soda, or washing soda, to each gallon of water in the cooling system, and letting the car run with the radiator almost at the boiling point for a period of about 30 minutes and then draining this off and flushing with clear water. This is not always effective, however, and the National Glycerine Service of Procter & Gamble Co., 9 E. Forty-sixth St., New York City, suggests the following method:

If a radiator becomes clogged, there is a way to unclog it that works successfully in most cases and which is simple, safe and cheap. All the equipment needed is a hose to supply water and a hose to supply air, and some convenient means to connect both of these to the bottom of the radiator.

This is the way the work is done:

The radiator is removed from the car and a water hose is connected to the pipe at the bottom of the radiator where the bottom hose connection is usually attached. The pet cock at the bottom of the radiator is removed and a small nipple is put in place of it and connected to an air hose. Any other suitable connection to an air line will do as well. The pipe where the top hose connection attaches to the radiator is closed with a large cork. A large section of rubber cut from an inner tube can be held in place with large rubber bands cut from an inner tube, and will serve the same as the cork. With the radiator cap removed and the radiator standing upright, the water is turned on gradually and allowed to flow out at the top. If hot water is available, the results are usually better and faster. The air is then turned on in spurts, a little carefully at first, and then in bigger spurts, to blow a mixture of water and air up through the radiator coil. This is continued for a few minutes, the radiator being allowed to fill with water between the spurts of air. The water and air



[READERS' CLEARING HOUSE]

may be allowed to flow through steadily together at a rapid rate for a few minutes. Care should be exercised not to place too much pressure on the radiator, and one should be careful to see that the air and water are passing through freely before a great amount of pressure is put on.

This treatment loosens up the rust and carries it out at the top of the radiator and does it much more effectively than air or water alone. It is possible that with some experimenting this method of cleaning radiators could be so developed that it would not be necessary to remove the radiator from the car. Of course, if this can be worked out a great saving in time will be effected.

Damage from Chattering

I have a Rollin car on which the brakes chatter badly. I believe this is the cause for breaking off the cap screws back of the transmission. There are four $\frac{1}{2}$ in. cap screws here that hold the plate to the back of the transmission and they break off occasionally. Please tell me what I can do to eliminate brake chatter so as to overcome this trouble.—Jos. L. Zaruba, 76 Splen St., Natick, Mass.

FOLLOWING are some of the causes of brake chatter, with remedies directly opposite:

- Loose lining—tighten or reline.
- Anchor pin twisted—straighten.
- Worn anchor pin—renew or build up.
- Weak rear chassis springs—replace or add leaves.
- Too little clearance between lining and drum—adjust brakes.
- Too much clearance on lower half of band—adjust brakes.
- Improper leverage—adjust brake rods.
- Lining doped—reline.

Removing Essex Pistons

How do you take the pistons of a 1924 Essex car down past the crankshaft.—Jos. L. Zaruba, 76 Splen St., Natick, Mass.

TO remove the Essex pistons, the bottom cap of the bearing is, of course, removed and the piston very carefully brought down to the crankshaft throws.

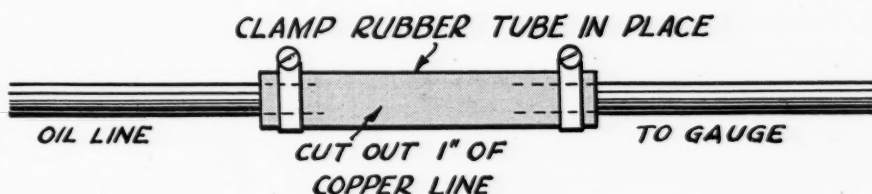
If the engine is too stiff for a mechanic under the car to turn the shaft by hand, a helper will be needed on the crank. He should very carefully turn the engine a little at a time as the mechanic instructs, while the mechanic keeps his hand on the connecting rod close to the piston and works the piston down as the shaft is turned. In a few cars, about 1923 or 1924, the clearance between the crankshaft and the side of the crankcase was such that the piston would not

go through. In these few cases, it is necessary to push the piston up through the top and with the aid of a torch gently heat the piston and withdraw the pin, and the piston then can be lifted off and the rod dropped out through the bottom.

Caster Incorrect

I have a Model 26-26 Buick car which is very difficult to steer around a corner, for immediately upon rounding the corner the front wheels try to straighten up. In fact, the steering wheel nearly jerks out of my hands. I have the wheels toed in $\frac{1}{8}$ in. and the tires are pumped to 40 lb. The car holds the road just fine and does not weave. I have driven other cars of this same year and they do not steer like mine. I would like to know how the axle is set as to caster so that it straightens up by itself. I think the caster is not set right. I think that when the car is hard to turn to either the right or the left and tries to straighten itself out immediately, that the caster is excessive. Of course, when it is in this condition, one has to actually lift the front of the car in making a turn. This part of the car has never been disturbed and the car has never been in a wreck. Everything is kept well oiled and nothing is worn yet. Please let me know what can be causing this trouble.—Fred Schuman, 117 W. Sixteenth St., Cedar Falls, Iowa.

WE suspect that, as you said, the caster of your front axle is excessive. However, let us start with a few of the simple alignment dimensions. The toe-in should be $\frac{5}{16}$ in., as measured at the center of the tire tread. The camber should be such that the wheel inclines out at the top so that they are $1\frac{1}{8}$ in. to $1\frac{1}{2}$ in. closer at the bottom than at the top. This measurement should be made at the wheel felloe. The caster should be so adjusted that the king pin inclines backward at the top, a total of 2 deg. from the vertical. In the design of practically all cars it is so arranged that when the car is turned to the right or the left, the front of the car is lifted slightly. Of course this amount is not visible to the eye. It is this caster action which keeps the car from weaving, or wandering on the road, and assists in steering. However, if you have excessive caster action, the car would act just as you have described, and we wonder if someone has not altered this amount of caster by changing the shims, possibly for the purpose of eliminating shimmying or wandering.



Damping Oil Pipe Noise

I have an Erskine car and am much annoyed by noise in the oil gage. At speeds above 30 miles an hour it is most noticeable and quite annoying. I have noticed this in a number of these cars and I would like to know what could be done to eliminate this noise. I felt sure that the trouble was in the gage so I put a new gage on, and the noise is still there. What can I do about it?—W. E. Tymeson, Box 274, Wallingford, Conn.

THE noise in the gage is caused by engine noises transmitted directly up to your steel dash by the oil line. If you will take the oil line that runs to the gage and cut out about 1 in. of it and put a length of oil-resisting rubber tubing over it and clamp it firmly in place you will overcome this noise. This rubber will act as a vibration damper and prevent the engine vibration and the noise from reaching your dash.

Car Operating Costs

Can you tell me the approximate operating cost per mile on a medium weight car, taking into consideration only items such as gasoline, oil, tires and mechanical upkeep?—Chas. N. Staley, The Central Garage Co., 120 W. Patrick St., Frederick, Md.

THERE is probably nothing harder to compile than accurate cost figures. That does not mean that many sets of figures are not available. It does mean, however, that cost figures are frequently very misleading. The deception is caused by the widely divergent conditions under which cars operate. Some may be handled by careful and experienced drivers, over good roads. Others may be driven hard or carelessly over bad roads. Sometimes an insignificant rise in the cost of oil is saved many times over in the cost of mechanical upkeep. So, you will see that setting down figures and then trying to reason that because these figures have prevailed with a similar car you are sure to get the same operating cost, is folly. We agree, however, that these figures are interesting and are glad to show the cost in cents per mile for gasoline, oil, tires and mechanical upkeep on five different light to medium-weight cars.

	1	2	3	4	5
Gas	1.43	3.07	2.24	.0177	.017
Oil .....	.0006	.001	.0005	.0025	.002
Tires .....	.6	.58	1.00	.01	.008
Mechanical Upkeep..	2.6	3.5	4.42	.012	.014



An Old Member of the Family Rises to Remark

MARISSA, ILL.—I have been a reader of MOTOR AGE for 13 or 14 years and am greatly interested in all the contents of every issue. Shop Kinks are a great help. An old member of the MOTOR AGE family.—*J. H. Keim.*

Better Than the Cops in Settling Arguments

REDFIELD, S. D.—We would not be without MOTOR AGE as it settles more arguments than our city police force.—*Liberty Garage.*

For Such as This We Burn

CAPE TOWN, AFRICA—On the cover—MOTOR AGE is slate—with a touch of flame. Between the covers—MOTOR AGE is all flame—no slate.—*H. S. Bros.*

O.K. if You Don't Want Ad- vance Ford News

HAPPY, TEX.—I have been reading the MOTOR AGE for some 2½ years, but have decided it is not the best magazine for me as I am in the Ford business exclusively and for sev-



eral months it has not been worth much to me. I have bought the Ford Dealers' News which I think is the better paper for me as it is exclusively Ford.—*W. A. Rea.*

Real and Interesting

CRETE, NEB.—I must say I have been taking MOTOR AGE a good many years, and consider it is a real and interesting paper for auto dealers.

I always like it and read it from one end to another.—*Vac J. Sebek.*

Alas! Alack! Alackaday!

TOKYO, JAPAN—Please be good enough in eradicating our name from your list of subscribers; for we have wounded our business at the end of last year.—*Nippon Shoji.*

LETTERS to the editor from those whose "attention has been called"; from those who point with pride and those who view with alarm, from those who are easy to please and those who are hard to please; from those who are happy when they find a good thing and those who are happier when they find something they consider not so good; from those who boost and those who knock; from those who see the doughnut and those who see the hole; in other words, Dear Subscriber, from you and you and you—as well as from the man who borrows your copy of MOTOR AGE or reads it over your shoulder.

Nothing in Particular, Everything in General

OCONOMOWOC, WIS.—Your subscription blank asks the question, "What department or feature of MOTOR AGE interests you most?" Our answer is "All of it."—*Land O'Lakes Auto Co.*

Jersey City Justice

JERSEY CITY, N. J.—We like the Reader's Clearing House.—*C. E. Wiesler.*

Good News from Neuse

NEUSE, N. C.—We are most interested in the Readers' Clearing House.—*O. L. Holliday.*

Entente Cordiale in Alliance

ALLIANCE, OHIO—I like all of MOTOR AGE.—*Fred Pizzedaz.*

Engines May Miss, But Not the R. C. H.

HOT SPRINGS, N. M.—I have been a subscriber to MOTOR AGE for several years and have watched the answers to the Readers' Clearing House and must say they sure hit the nail on the head. I have been in the game since 1910 and so ought to be a fair judge.—*R. S. Doughty.*

Not Only a Help But Also an Instructor

LISBON, FLA.—I find the Readers' Clearing House section of your magazine to be a great help to me and can say that I have learned a great deal from reading it.—*G. R. Gastfield.*

Specifically Specifications

RUPERT, IDAHO—The car specifications are the most interesting feature of MOTOR AGE to us.—*Carlson-Titus Motor Co.*

"It" is Yours

WINTER HAVEN, FLA.—We need "IT"—We want "IT"—Must have "IT." So send it along



regularly.—*Jim's Service Station, by Jim, himself.*

Something for Something

MONROE, ORE.—I find MOTOR AGE is very valuable to me.—*D. D. Foreman.*

No More—No Less

DURANT, OKLA.—We like all of MOTOR AGE.—*Bloomer Garage.*

Prices, Weights and Equipment of Current Passenger Car Models

Important Changes in Specifications and Price Tables since last issue:

Jordan
"Cross Country 6"

Peerless
New Models

Velie
2 New Coupes

Passengers and Model					F.O.B. Price	Doors	Shipping Weight	Standard Equipment
CADILLAC "341"								
"Fish"								
2-4p. Roadster...								
5p. Phaeton...								
5p. Sp. Phaeton...								
7p. Touring...								
2-4p. Coupe...								
2-4p. Conv. Coupe...								
5p. Coupe...								
5p. Sedan...								
5p. Town Sedan...								
7p. Sedan...								
5p. Imp. Sedan...								
7p. Imp. Sedan...								
5p. Imperial Cab...								
7p. Imperial Cab...								
"Fleetwood"								
5p. Sedan...								
5p. Sedan Cab...								
7p. Sedan...								
5p. Sedan Cab...								
5p. Imperial...								
5p. Imperial Cab...								
7p. Imperial...								
7p. Imperial Cab...								
... Town Cab Con...								
... Town Cab Con...								
... Lim Bro'm Con...								
CHANDLER								
"Big Six"								
7p. Touring...								
5p. Met. Sedan...								
4p. Coupe...								
3p. Ctry. Club...								
7p. Sedan...								
6p. Royal Sedan...								
3-5p. Cabriolet...								
"Spec. 6"								
5p. Touring...								
5p. Sedan...								
"Spec. In. 6"								
5p. Touring...								
3-5p. Roadster...								
5p. Sp. Touring...								
3-5p. Cabriolet...								
3p. Coupe...								
5p. Sedan...								
5p. DeL. Sedan...								
3-5p. Coupe...								
"Roy. St. 8"								
7p. Touring...								
4p. Coupe...								
4p. Ctry. Club...								
5p. Sedan...								
7p. Sedan...								
3-5p. Cabriolet...								
5p. DeL. Sedan...								
CHEVROLET								
2p. Roadster...								
5p. Touring...								
5p. Coach...								
2p. Coupe...								
5p. Sedan...								
2-4p. Cabriolet...								
5p. Imp. Land...								
CHRYSLER "52"								
5p. Touring...								
2-4p. Roadster...								
2p. Club Coupe...								
5p. Sedan...								
5p. Sedan...								
2-4p. DeL. Coupe...								
5p. DeL. Sedan...								
"62"								
5p. Touring...								
2-4p. Roadster...								
2p. Bus Coupe...								
5p. Sedan...								
5p. Sedan...								
2-4p. Coupe...								
5p. Land. Sedan...								
"72"								
2-4p. Roadster...								
2-4p. Sp. Rdstr...								
4p. Coupe...								
2-4p. Coupe...								
5p. Roy. Sedan...								
5p. Town Sedan...								
2-4p. Con't Coupe...								
5p. Crown Sedan...								
7p. Town Cab...								
Imp. "80"								
2-4p. Roadster...								
5p. Sedan...								
7p. Sedan...								
5p. Town Sedan...								
7p. Sedan Lim...								
CUNNINGHAM								
"V-7"								
7p. Touring...								
4p. Sp. Touring...								
4p. Coupe...								
6p. Limousine...								
DAVIS "99"								
4p. Polo Rdster...								
5p. Touring...								
4p. Coupe...								
5p. Emp. Sedan...								
DIANA "St. 8"								
5p. Phaeton...								
5p. Roy. Roadster...								
5p. P.B. Rdstr...								
5p. Cab. Rdstr...								
5p. Collap. Rdstr...								
5p. 4d. Sedan...								
5p. 2d. Sedan...								
DODGE BROS.								
"Std. 6"								
2-4p. Conv't Cab...								
2p. Coupe...								
5p. Sedan...								
5p. Sedan DeL...								
"Victory 6"								
2p. Coupe...								
2-4p. Coupe...								
5p. Sedan...								
4p. Brougham...								
4p. DeL. Bro'm...								
5p. DeL. Sedan...								
"Senior"								
4p. Cab. Rdstr...								
4p. Sport Cab...								
5p. Sp. Sed. DeL...								
5p. Sedan...								
4p. Coupe...								
du PONT "E"								
4p. Roadster...								
5p. Touring...								
4p. Coupe...								
4p. Conv't Coupe...								
5p. Sedan...								
5p. Con. Sedan...								
"F"								
... Phaeton...								
... Sp. Phaeton...								
... Sedan...								
5p. Limousine...								
7p. Sedan...								
7p. Limousine...								
... Conv't Sedan...								
DURANT								
"Four"								
... Roadster...								
... Coupe...								
5p. Sedan...								
5p. Sedan...								
"55"								
2p. Coupe...								
5p. Sedan...								
5p. Brougham...								
"65"								
5p. Touring...								
2-4p. Sp. Rdstr...								
2-4p. Collap. Cab...								
2-4p. Coupe...								
5p. Sedan...								
6p. Sedan...								
5p. Brougham...								
"75"								
5p. Sedan...								
5p. Brougham...								
ELCAR								
"6-70"								
4p. Roadster...								
5-7p. Touring...								
4p. Brougham...								
5p. Sedan...								
"8-78" Std.								
2-4p. Roadster...								
5p. Touring...								
2-4p. Coupe...								
5p. Sedan...								
"8-78 Royal"								
4p. Roadster...								
5p. Touring...								
4p. Coupe...								
5p. Sedan...								
"8-82"								
5-7p. Touring...								
2-4p. Roadster...								
4p. Coupe...								
5p. Prin. Sedan...								
"8-91"								
2-4p. Roadster...								
4p. Coupe...								
5p. Prin. Bro'm...								
5p. Prin. Sedan...								
"120"								
5-7p. Touring...								
5p. Std. Sedan...								
7p. Std. Sedan...								
ERSKINE SIX								
"51"								
4p. Spt. Rdstr...								
5p. Club Sedan...								
5p. Sedan...								
2p. Bus. Coupe...								
4p. Spt. Coupe...								
5p. Sedan, Royal...								
ESSEX								
"Super Six"								
2-4p. Coupe...								
5p. Coach...								
5p. Sedan...								
FALCON								
KNIGHT								
"12"								
4p. Roadster...								
... Touring...								
4p. G.G. Rdster...								
2-4p. Coupe...								
5p. Sedan...								
5p. Sedan...								
5p. Landau...								

Important Changes in Specifications and Price Tables since last issue:

Jordan

"Cross Country 6"

Peerless

New Models

Velie

2 New Coupes

Passengers and Model		F.O.B. Price	Doors	Shipping Weight	Standard Equipment
AUBURN					
"76"					
2-4p. Roadster...					
6p. Touring...					
... Cabriolet...					
6p. Sp. Sedan...					
6p. Sedan...					
"88"					
2-4p. Roadster...					
... Speedster...					
6p. Touring...					
... Cabriolet...					
5p. Phaeton Sed...					
6p. Sp. Sedan...					
6p. Sedan...					
"115"					
2-4p. Roadster...					
... Speedster...					
6p. Touring...					
7p. Touring...					
2-4p. Cabriolet...					
5p. Phaeton Sed...					
6p. Sp. Sedan...					
6p. Sedan...					
7p. Sedan...					
BUICK					
"115"					
4p. DeL. Rdstr...					
5p. Touring DeL...					
2-4p. Coupe...					
5p. 2d. Sedan...					
5p. 4d. Sedan...					
4p. Ctry. Club...					
5p. Town Bro'm...					
"120"					
4p. Coupe...					
5p. 4d. Sedan...					
5p. Town Bro'm...					
"128"					
2-4p. Sp. Rdstr...					
4p. Sp. Touring...					
5p. Coupe...					
4p. Ctry. Club...					
5p. Bro. Sedan...					
7p. Sedan...					

Prices, Weights and Equipment of Current Passenger Car Models

Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment
FORD "A"					HUPMOBILE					LA SALLE					McFARLAN				
2-4p. Roadster....	\$385	2	...	Bghnr	"Century 6"					125" W.B.					"Str. 8"				
5p. Phaeton.....	395	4	...	Bghnr	5p. Phaeton.....	\$1425	2	2880	aghnr	2-4p. Roadster....	\$2485	2	3755	aeghlmprx	2p. Roadster.....	\$3050	2	3400	afghlmprx
2p. Coupe.....	495	2	...	Bghnr	4p. Sportster....	1435	2	2880	aghnr	5p. Phaeton.....	2485	4	3770	aeghlmprx	5p. Touring.....	2650	4	3400	afghlmprx
5p. Tudor Sedan..	495	2	...	Bghnr	7p. Phaeton.....	1455	4	2950	aghnr	5p. Sp. Phaeton..	2975	4	4170	Beghjkmpn	7p. Touring.....	2750	4	3450	afghlmprx
2-4p. Spt. Coupe..	550	2	...	Bghnr	5p. Sedan 2d....	1345	2	2975	aghnr					4p. Sp. Phaeton..	3180	4	3200	afghlmprx	
5p. Fordor Sedan	570	4	...	Bghnr	4p. Coupe.....	1385	2	2930	aghnr	2p. Bus. Coupe....	2350	...	3930	aeghlmprtx	3p. Town Coupe..	3180	2	3650	afghlmprx
					5p. Sedan.....	1395	4	3040	aghnr	5p. Family Sedan..	2350	...	4030	aeghlmprtx	5p. Sedan.....	3180	4	3650	afghlmprx
					2p. Cabriolet....	1475	2	2965	aghnr	2-4p. Coupe.....	2450	...	3965	aeghlmprtx	5p. Brougham....	3180	4	3650	afghlmprx
					"Century 125-8"					2-4p. Conv. Cpe....	2550	...	3890	aeghlmprtx	7p. Town Car....	4600	4	3750	afghlmprx
FRANKLIN					5p. Touring.....	1795	4	3300	aghvnx	4p. Victoria.....	2550	...	3985	aeghlmprvx	7p. Sedan.....	3690	4	4000	afghlmprx
"Series 12"					7p. Touring.....	1895	4	3360	aghvnx	5p. Town Sedan..	2495	4	4090	aeghlmprtx	7p. Sub. Sedan..	3780	4	4000	afghlmprx
119" W.B.					2-4p. Roadster..	1895	2	3355	aghvnx	5p. Sedan.....	2495	4	4090	aeghlmprtx					
3p. Coupe.....	\$2625	...	3390	an	5p. Brougham....	2095	2	3515	aghvnx	5p. Town Cab....	4500	4	...						
4-5p. Victoria....	2760	...	3470	an	2-4p. Coupe.....	2195	2	3465	aghvnx	5p. Trans. Cab....	4700	4	...						
5p. Sedan.....	2790	...	3500	an	5p. Sedan.....	2195	4	3545	aghvnx										
5p. Or. Sedan....	2815	...	3500	an	5p. Victoria.....	2195	2	3525	aghvnx										
5p. Spt. Sedan....	2910	...	3550	an	7p. Sedan.....	2345	4	3360	aghvnx										
3-5p. Conv't Cpe..	2925	...	3450	an	7p. Sedan Lim....	2520	4	3360	aghvnx										
128" W.B.					"Century 8"														
2-4p. Sp. Runab't	2975	...	3450	an	5p. Phaeton.....	1905	...	...	aghmv									
5p. Sp. Touring..	2975	...	...	an	2-4p. Sportster..	1915	...	...	aghmv									
7p. Touring.....	3060	...	3540	an	7p. Phaeton.....	1935	...	...	aghmv									
7p. Sedan.....	2980	...	3700	an	5p. Sedan.....	1825	2	3385	aghmv										
7p. Or. Sedan....	3015	...	3700	an	4p. Coupe.....	1865	...	...	aghmv									
7p. Limousine....	3080	...	3780	an	5p. Sedan.....	1875	4	3455	aghmv										
					2-4p. Cabriolet..	1955	...	...	aghmv									
GARDNER					JORDAN					LINCOLN					MARMON				
"75 Std."					"Cous C'ty 6"					"8"					"68"				
4p. Roadster....	\$1195	2	2995	afhmnr	4p. Blue Boy....	\$1495	4	2800	Beghkmprx	2p. Spt. Rdstr....	\$4600	2	4930	aeghlmprx	2p. Roadster.....	\$1495	
5p. Sp. Coupe....	1295	2	3290	afhjmnr	4p. Spt. Saloon..	1295	2	2775	afhjmnr	2-4p. Club Rdstr.	4600	...	5010	aeghlmprx	5p. Sedan.....	1395	4	2897	ahmnr
4p. Vic. Coupe..	1295	2	3290	afhjmnr	2-4p. Tomboy....	1395	2	2650	aghmnrx	7p. Spt. Touring..	4600	4	4940	aeghlmprx	4p. Vic. Coupe..	1450	...	2867	ahmnr
5p. Club Sedan..	1390	4	3265	afhmnr	5p. Sedan.....	1395	4	2775	aghmnrx	4p. Spt. Phaeton..	4600	4	4910	Beghklmrxw	2p. Coupe.....	1395	...	2827	ahmnr
5p. Std. Sedan..	1495	4	...	ahmnr	"JJ"					4p. Coupe.....	4600	2	4805	aeghlmprx					
4p. Roadster....	1295	2	2995	aeghmnr	4p. Playboy.....	1845	2	2915	aghmnrx	4p. Sedan.....	4800	4	4930	aeghlmprx	2-4p. Roadster....	1895	2	3007	ahmnrwrx
5p. Sp. Coupe....	1395	2	3290	aeghjmnr	2-4p. Sp. Coupe..	1895	2	3070	aghmnrx	5p. Sedan.....	4800	4	5010	aeghlmprx	4p. Speedster....	1965	4	3052	ahmnrwrx
4p. Vic. Coupe..	1395	2	3290	aeghjmnr	5p. Cus. Sedan..	1895	4	3200	aghmnrx	2p. Coupe.....	5000	...	4720	aeghlmprx	2-4p. Collap. Cpe.	1995	2	2987	ahmnr
5p. Club Sedan..	1490	4	3265	aeghmnr	4p. Cus. Vict....	1895	2	3200	aghlmprtx	7p. Sedan.....	5000	4	5050	aeghlmprx	2-4p. Coupe.....	1895	2	3007	ahmnr
5p. DeL. Sedan	1595	4	...	aeghmnr	"JE"					7p. Limousine....	5200	4	5165	aeghlmprx	4p. Vic. Coupe..	1995	2	3066	ahmnr
4p. Roadster....	1695	2	3040	Aeghmnr	4p. Collap. Coupe	1995	2	3185	aghmnrx	4p. Berline.....	5500	...	5115	aeghlmprx	5p. Sedan.....	1895	4	3104	ahmnr
5p. Brougham....	1875	4	3360	Aeghjmnr	4p. Perm. Coupe..	1995	2	3185	aghmnrx	7p. Limousine....	6000	...	5380	aeghlmprx					
5p. Sedan.....	1895	4	3380	Aeghmnr	5p. Victoria.....	1995	2	3275	aghlmprtx	6p. Ber. Landau..	6500	...	5140	aeghlmprx	2p. Speedster....	3485	2	4251	aeghlmprx
...Cus. Coupe....	2095		5p. Sedan.....	1995	4	3300	aghmnrx	7p. Cabriolet....	6600	...	5160	aeghlmprx	4p. Speedster....	3485	2	4256	aeghlmprx
"95"										7p. Le Baron Cab	7000	...	5200	aeghlmprx	5p. Phaeton.....	3485	4	4017	aeghlmprx
2-4p. Roadster..	2095	aeghlmprx	KISSEL					7p. Holbrook Cab	7200	...	5280	aeghlmprx	7p. Tour. Speed..	3565	4	4480	aeghlmprx
2-4p. Collap. Cpe.	2495	aeghlmprx	"6-70"					7p. Collap. Cab..	7300	...	5140	aeghlmprx	2p. Coupe Rdstr..	3565	2	4374	aeghlmprx
5p. Brougham....	2275	4	...	aeghlmprx	4p. Cpe. Roadster	\$1595	2	2920	ahmr					5p. Town Coupe..	3195	2	4452	aeghlmprx	
5p. Sedan.....	2295	4	...	aeghlmprx	5p. Bro'm Sedan..	1495	4	2915	ahmr					2p. Coupe.....	3485	2	4373	aeghlmprx	
					5p. Victoria.....	1595	...	...	ahmr					4p. Victoria.....	3485	2	4346	aeghlmprx
GRAHAM-PAIGE					5p. Sedan.....	1595	...	...	3005					5p. Brougham....	3485	4	4525	aeghlmprx
"610"					"8-80"									5p. Sedan.....	3565	4	4498	aeghlmprx	
2p. Coupe.....	\$860	2	...	aghmnr	5p. Phaeton.....	1885	4	3240	ahmnr					7p. Sedan.....	3640	4	4620	aeghlmprx	
5p. Sedan.....	875	4	...	aeghmnr	4p. Speedster....	2095	2	3155	ahmnr					5p. Cus. Sedan..	3960	4	4515	aeghlmprx	
"614"					4p. Cp. Rdstr....	2095	2	3343	ahmnr					7p. Cus. Sedan..	4075	4	4678	aeghlmprx	
4p. Coupe.....	1275	2	...	aghmnr	5p. Spec. Bro'm..	1995	2	3345	ahmnr					7p. Cus. Limou..	4175	4	4718	aeghlmprx	
5p. Sedan.....	1295	4	...	aghmnr	5p. Bro'm Sedan..	2095	4	3400	ahmnr										
"619"					5p. Conv. Bro'm..	2495	...	...	ahmnr									
4p. Coupe.....	1575	...	...	aeghlmprx	132" W.B.													
5p. Sedan.....	1595	4	...	aeghlmprx	7p. Touring.....	1985	4	3360	ahmnr										
"629"					4p. Tourster....	2095	4	3155	ahmnr										
5p. Sedan.....	1985	4	...	Deghlmpr	5p. Bro'm Sedan..	2295	4	3455	ahmnr										
"635"					7p. Sedan.....	2495	...	...	ahmnr									
5p. Town Sedan..	2085	4	...	Deghlmpr	"8-80S"														
7p. Sedan.....	2110	4	...	Deghlmpr	4p. Coupe Rdstr..	1995	...	...	3350									
"835"					5p. Brougham....	1895	...	...	3250									
5p. Sedan.....	2285	4	...	Deghlmpr	5p. Sedan.....	1995	...	...	3350									
...Town Sedan..	2385	4	...	Deghlmpr	4p. Victoria.....	1995	...	...	3320									
7p. Sedan.....	2410	4	...	Deghlmpr	"8-90"														
2-4p. Cabriolet..	2485	2	...	Deghlmpr	5p. Phaeton.....	2185	4	3220	ahmnr										
2-4p. Coupe.....	2485	2	...	Deghlmpr	4p. Speedster....	2395	2	3360	ahmnr										
					4p. Cpe. Rdstr....	2395	2	3378	ahmnr										
					5p. Spec. Bro'm..	2235	2	3671	ahmnr										
					5p. Bro'm Sedan..	2395	4	3760	ahmnr										
					5p. Conv. Bro'm..	2795	...	...	3863									
					139" W.B.														
					7p. Touring.....	2285	4	3630	ahmnr										
					5p. Bro'm Sedan..	2595	4	3755	ahmnr										
					7p. Sedan.....	2795	4	3975	ahmnr										
					"White Eagle"														
					132" W.B.														
					4p. DeL. Spdrtr..	3275	...	...	Begh									
					4p. Coupe Rdstr..	3185	...	...	Begh									
					5p. DeL. Victoria	3185	...	...	Begh									
					139" W.B.														
					4p. DeL. Tourster	3275	...	...	Begh									
					5p. DeL. Bro'm..	3275	...	...	Begh									
					7p. DeL. Sedan..	3785	...	...	Beghvx									
					7p. Ber Sed DeL	3885	...	...	Beghvx									
HUDSON																			
"S"																			
2-4p. Coupe.....	\$1295	2	3525	ahmnru															

Prices, Weights and Equipment of Current Passenger Car Models

Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Shipping Weight	Standard Equipment
"Special"					"Std. 8"					"Wolverine"					"Commander"				
4p. Roadster....	1225	2	2980	Dghnr	7p. Touring....	3550	4	.....	.....	4p. Cabriolet....	1195	2	2850	aeghlnr	4p. Sp. Roadster..	\$1695	2	3333	aghlmr
5p. Touring....	1135	4	2880	Dghnr	5p. Phaeton....	3650	4	.....	.....	5p. Brougham....	1195	2	2980	aeghlnr	2p. Cpe. Regular..	1495	2	.....	aghlmr
2-4p. Cabriolet..	1290	4	3070	Dghnr	2p. Coupe....	3550	2	.....	.....	5p. Sedan....	1295	4	3090	aeghlnr	5p. Vic. Regular..	1495	2	3500	aghlmr
2p. Bus Coupe....	1165	2	3030	Dghnr	4p. Conv't Coupe	3650	2	.....	.....	ROAMER					5p. Sp. Regular....	1495	4	3566	aghlmr
5p. Sedan....	1215	2	3150	Dghnr	4p. Coupe....	3750	2	.....	.....	"8-78"					4p. Cpe. Regular..	1625	2	3455	aghlmr
4p. Coupe....	1245	2	3030	Dghnr	5p. Club Sedan..	3750	4	.....	.....	2p. Roadster....	\$1595	2	3450	.....	4p. Cpe. Regal....	1625	2	3500	aghlmr
4p. Victoria....	1295	2	3170	Dghnr	7p. Sedan....	3750	4	.....	.....	2p. Coupe....	1750	2	3225	.....	5p. Sed. Regal....	1625	4	3466	aghlmr
5p. Sedan....	1255	4	3250	Dghnr	8p. Sedan Lim..	3850	4	.....	.....	5p. Sedan....	1795	2	3380	.....	"President 8"				
5p. Coupe....	1445	4	3350	Dghnr	PEERLESS					2p. Coupe....	1985	2	3410	ag	5p. Sed. Regular..	1985	4	4000	aghlmr
"Advanced"					2-4p. Roadster....	\$1195	2	2600	deghlmr	5p. Brougham....	1985	2	3440	ag	7p. Sed. Regular..	1985	4	4040	aghlmr
121" W.B.					5p. Phaeton....	1195	4	2765	aghlmr	5p. Sedan....	1985	4	3570	ag	5p. State Sedan..	2250	4	4185	Bghklmnp
4p. Roadster....	1475	2	3400	Dghmr	2-4p. C'pe Rdstr..	1295	4	2725	deghlmr	5p. Sedan....	2405	4	3650	cg	7p. State Sedan..	2250	4	4225	Bghklmnp
5p. Touring....	1340	4	3400	Dghmr	5p. Brougham....	1195	4	.....	.....	5p. Sedan....	2985	4	3880	cg	7p. Limousine....	2450	4	4300	Bghklmnp
5p. Sedan....	1425	2	3620	Dghmr	5p. Sedan....	1295	4	2895	deghlmr	"8-88"					STUTZ "BB"				
5p. Sedan....	1495	4	3650	Dghmr	5p. Phaeton....	1395	4	2850	aghlmr	5p. Tourer....	3285	4	3980	cg	"Custom"				
"127" W.B.					2-4p. Roadster....	1495	2	3025	ceghlmr	5p. Sedan....	2405	4	3650	cg	131" W.B.				
7p. Touring....	1440	4	3500	Dghmr	2-4p. Coupe....	1565	2	2975	aghlmr	ROLLS ROYCE					2p. Speedster....	\$3495	2	4475	aefghlmp
5p. Sp. Touring..	1540	4	3500	Bghlmp	5p. 2d. Sedan....	1395	2	3000	aghlmr	"Si. Ghost"					4p. Speedster....	3595	4	4509	aefghlmp
4p. Victoria....	1535	2	3640	Dghmr	5p. Std. Sedan....	1395	4	3125	aghlmr	Open Models....	\$	.....	.....	.....	4p. Speedster....	3845	4	4600	aefghlmp
4p. Coupe....	1775	2	3650	Dghmr	5p. Spt. Sedan....	1395	4	3125	aghlmr	Closed Models..	\$	.....	.....	.....	2p. Black Hawk....	4895	2	4302	Bghklmnp
5p. Amb. Sedan..	1925	4	3820	Dghmr	5p. Del. Sedan....	1795	4	3125	deghlmr	"New Phan"....	\$	.....	.....	.....	4p. Black Hawk....	4945	2	.....	behlmp
7p. Sedan....	1950	4	3830	Dghmr	"6-91"					Open Models....	\$	.....	.....	.....	2p. Coupe....	3495	2	4649	aefghlmp
7p. Imp. Sedan..	2165	4	3900	Dghmr	5p. Phaeton....	1695	4	2930	aghlmr	Closed Models..	\$	.....	.....	.....	4p. Vic. Coupe....	3495	2	4675	aefghlmp
OAKLAND					2-4p. Sp. Roadster	1695	2	2960	aghlmr	STEARNS-					5p. Sedan....	3570	4	4977	aefghlmp
"AA-6"					4p. Coupe....	1725	2	3050	aghlmr	KNIGHT					5p. Brougham....	3570	4	4920	aefghlmp
5p. Sp. Phaeton..	\$1095	4	2620	aehjn	4p. Sedan....	1895	2	3150	aghlmr	"6"					2p. Cab. Coupe....	3665	2	4520	aefghlmp
4p. Sp. Rdstr....	1075	2	2730	aehjn	5p. Sedan....	1895	4	3200	aghlmr	126" W.B.	\$2495	.....	.....	.....	7p. Speedster....	3895	4	4748	aefghlmp
2-4p. Cabriolet..	1155	2	2825	ahn	5p. Landulet....	1995	4	3250	aghlmr	5p. C. C. Sedan..	2495	.....	.....	.....	7p. Sedan....	3895	4	5018	aefghlmp
5p. 2d. Sedan....	1045	2	2890	ahn	4p. Victoria....	.....	2	.....	.....	5p. Sedan....	2495	.....	.....	.....	7p. Sedan Lim....	3995	4	5150	aefghlmp
3p. Land. Coupe..	1045	2	2895	ahn	7p. Sedan....	1985	4	.....	B	5p. Coupe....	2645	.....	.....	.....	"Weyman Cus."				
5p. 4d. Sedan....	1145	4	2980	ahn	"8-69"					7p. Limousine....	2945	.....	.....	.....	131" W.B.				
5p. Land. Sedan..	1265	4	3050	aehnou	126" W.B.	2705	.....	3810	deghlmp	134" W.B.	2645	.....	.....	.....	2p. Black Hawk....	4895	2	.....	behlmp
OLDSMOBILE					5p. Sedan....	2345	4	3875	deghlmp	7p. Sedan....	2845	.....	.....	.....	5p. Sedan....	4120	4	4393	aefghlmp
"F-28"					2-4p. Roadster....	2245	2	3650	deghlmp	7p. Limousine....	2945	.....	.....	.....	4p. Sedan....	4120	2	.....	aefghlmp
Sp. Roadster....	\$995	.....	.....	ceghlmp	7p. Cus. Sed. Lim	2645	4	4275	deghlmp	4p. Roadster....	\$3250	2	4252	aefghlmp	4p. Coupe....	4120	2	.....	aefghlmp
5p. Sp. Touring..	995	.....	.....	ceghlmp	5p. Sedan....	2345	4	3950	deghlmp	4p. Touring....	3250	4	4322	aefghlmp	5p. Landau Sed..	4420	4	.....	aefghlmp
2p. Coupe....	925	.....	.....	ceghlmp	7p. Sedan....	2545	4	4050	deghlmp	4p. Cab. Rdstr....	3550	2	4500	aefghlmp	5p. Sedan....	4495	4	.....	aefghlmp
5p. Sedan, 2d....	925	.....	.....	ceghlmp	5p. Ber. Lim....	2345	4	4100	deghlmp	5p. Cus. Sedan....	3350	4	4562	aefghlmp	5p. Sedan....	4545	4	.....	aefghlmp
2-4p. Spt. Coupe.	995	.....	.....	ceghlmp	PIERCE ARROW					4p. Coupe....	3450	2	4527	aefghlmp	7p. Sedan....	4745	4	.....	aefghlmp
5p. Sedan, 4d....	1025	4	.....	ceghlmp	"81"					5p. Cus. Sedan....	3350	4	4562	aefghlmp	7p. Limousine....	4995	4	4778	aefghlmp
5p. Landau Sed..	1085	.....	.....	ceghlmp	2p. Runabout....	\$2900	2	3300	afghlmp	4p. Coupe....	3450	2	4527	aefghlmp	7p. Landau Lim..	5295	4	.....	aefghlmp
OVERLAND					4p. Touring....	3100	4	3330	afghlmp	5p. Std. Sedan..	3450	4	4572	aefghlmp	"Salon Cus."				
"4" Whippet					4p. Conv't Rdstr..	3450	2	.....	afghlmp	5p. Sedan Lim....	3700	4	4647	aefghlmp	5p. PW Sedan....	6345	4	.....	aefghlmp
5p. Touring....	\$455	4	1985	agr	2p. Coupe....	3250	2	3265	afghlmp	5p. Cus. Sed. Lim	3700	4	4637	aefghlmp	7p. PW Sedan....	6345	4	5014	aefghlmp
2-4p. Roadster..	525	2	1932	agr	5p. Brougham....	3250	2	3560	afghlmp	7p. Sedan....	3750	4	4702	aefghlmp	7p. Con. T'n Car.	6895	4	.....	aefghlmp
2p. Coupe....	535	2	2060	agr	5p. Club Sedan..	3300	4	3690	afghlmp	7p. Sedan Lim....	3950	4	4777	aefghlmp	VELIE "Std.50"				
2-4p. Coupe Cab.	545	2	2122	agr	2-4p. Coupe....	3350	2	3435	afghlmp	"H"					5p. Touring....	\$995	2	2670	aefghlmp
5p. Coach....	535	2	2160	agr	5p. Sedan....	3350	4	3600	afghlmp	4p. Roadster....	.....	2	.....	.....	5p. Sedan....	1115	2	.....	aefghlmp
5p. Sedan....	585	4	2210	agr	5p. Sp. Sed. Land	3350	4	.....	afghlmp	4p. Cabriolet....	.....	2	.....	.....	5p. Coupe....	1165	2	2917	aefghlmp
(6) Whippet					5p. Club Land....	3400	4	3695	afghlmp	5p. Coupe....	.....	2	.....	.....	5p. Sedan....	1165	4	3017	aefghlmp
2-4. Roadster....	615	2	.....	agr	7p. Sedan....	3450	4	3670	afghlmp	5p. Metro Sed....	1195	2	.....	.....	5p. Metro Sed....	1265	4	.....	aefghlmp
5p. Touring....	615	4	.....	agr	4p. Coupe....	3450	2	3450	afghlmp	2-4p. Metro Cpe..	1265	2	.....	.....	"6-77"				
2-4p. Coupe....	695	2	.....	agr	7p. Enc. Dr. Lim.	3550	4	3760	afghlmp	5p. Spec. Sedan..	1585	4	3365	aefghlmp	5p. Royal Sedan..	1635	4	3395	aefghlmp
5p. Coach....	695	2	.....	agr	2p. Runabout....	5875	2	4560	afghlmp	5p. Coupe....	1635	2	.....	aefghlmp	5p. Coupe....	1635	2	.....	aefghlmp
5p. Sedan....	745	4	.....	agr	4p. Touring....	5875	4	4510	afghlmp	5p. Sedan....	.....	4	.....	.....	5p. Club Phaeton.	2095	4	3640	aefghlmp
PACKARD					7p. Touring....	5875	4	4585	afghlmp	5p. Touring....	5500	4	4872	afghlmp	5p. Coupe....	2095	2	.....	aefghlmp
"526"					7p. Sedan....	5875	4	4815	afghlmp	5p. Sedan....	5600	4	4872	afghlmp	5p. Spec. Sedan..	2095	4	3675	aefghlmp
4p. Runabout....	\$2275	2	3620	deghlmp	7p. Lim. Encl....	5875	4	4870	afghlmp	7p. Limousine....	5800	4	5217	afghlmp	5p. Coupe....	2095	4	3675	aefghlmp
5p. Phaeton....	2275	4	3665	deghlmp	3p. Coupe....	6375	2	4760	afghlmp	7p. Town Cab....	.....	4	.....	.....	5p. Spec. Sedan..	2095	4	3675	aefghlmp
5p. Sedan....	2285	4	4000	deghlmp	4p. Cpe. Sedan..	6375	2	4795	afghlmp	7p. Town Bro m..	.....	4	.....	.....	"8-88"				
2-4p. Coupe....	2350	2	3950	.....	4p. Sedan....	6375	4	4830	afghlmp	4p. Roadster....	3950	2	4448	aefghlmp	5p. Club Phaeton.	2095	4	3640	aefghlmp
4p. Conv't Cpe..	2425	2	3875	.....	7p. Enc. Dr. Lan.	6000	4	4895	afghlmp	4p. Touring....	3950	4	4633	aefghlmp	5p. Coupe....	2095	2	.....	aefghlmp
5p. Phaeton....	2385	4	3745	.....	7p. Sedan Lanl..	6000	4	4840	afghlmp	4p. Cabriolet....	4550	2	4717	aefghlmp	5p. Sedan....	1095	4	2858	agharu
4p. Runabout....	2385	2	3700	.....	4p. Lim. Encl....	6375	4	4880	afghlmp	4p. Coupe....	4530	2	4882	aefghlmp	"Great 6"				
7p. Touring....	2485	4	3865	deghlmp	4p. C. C. Sedan..	6475	4	4805	afghlmp	5p. Sedan....	4650	4	4934	aefghlmp	2-4p. Roadster....	1850	2	3486	aghlmr
4p. Coupe....	2685	2	4000	deghlmp	2p. Coupe....	6600	2	4745	afghlmp	4p. Touring....	4750	4	5027	aefghlmp	5p. Touring....	1850	4	3675	aghlmr

Mechanical Specifications of Current Passenger Car Models

This list comprises current cars distributed on a national basis only. Data for previous models back to 1920 will be found in the Chilton Catalog and Directory

This list comprises current cars distributed on a national basis only.

MAKE AND MODEL	Wheel Base (Inches)	Tire Size	Make and Model	Bore and Stroke	Rated H.P.	Piston Displacement	Valve Arrangement	ENGINE										ELECTRICAL SYSTEM			REAR AXLE		BRAKES		Chassis Lubrication—	ABBREVIATIONS— NAMES OF MFRS. OF STOCK PARTS							
								Number of Cyls.	Compression Ratio	Camshaft Drive	Piston Material	No. Main Bearings	Crankshaft Vibration Damper	Oiling System	Oil Cleaner?	Radiator Shutter	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal Make	Type and Make			Gear Ratio	Foot—Type and Location	Hand—Type and Location	4-Wheel Type	Steering Gear—Type and Make	Rear Spring—Type and Length	
Auburn.....	76	29x5.25	Lyc.	6-27x4 1/4	19.8	185 L	L	88-3200	5.05	Ch.	Al.	4	Y	PG	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Auburn.....	86	30x6.00	Lyc.	8-27x4 1/4	23.8	260 L	L	115-3300	5.35	Ch.	Al.	5	Y	PG	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Auburn.....	100	30x6.00	Lyc.	8-31x4 1/4	33.4	271 L	L	63-2800	4.79	He.	C.I.	4	Y	PG	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Buick.....	115	31x5.25	Own.	6-31x4 1/4	29.4	271 L	L	77-2800	4.3	He.	C.I.	4	Y	PG	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Buick.....	120-128	33x6.00	Own.	6-31x4 1/4	29.4	271 L	L	77-2800	4.3	He.	C.I.	4	Y	PG	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Cadillac.....	341	32x6.75	Own.	8-31x4 1/4	35.1	341 L	L	90-3000	4.9	Ch.	N.L.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chandler.....	Big 6	32x6.00	Own.	8-31x4 1/4	33.7	331 L	L	83-2600	5.0	Ch.	C.I.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chandler.....	Spec. Inv. 6	30x5.00	Own.	8-31x4 1/4	23.4	191 L	L	40-3000	5.0	Ch.	C.I.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chandler.....	Spec. Inv. 6	30x5.00	Own.	8-31x4 1/4	23.4	191 L	L	40-3000	5.0	Ch.	C.I.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chandler.....	Royal St. 8	32x6.00	Own.	8-31x4 1/4	36.4	340 L	L	94-3200	5.0	Ch.	C.I.	5	Y	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chandler.....	124	32x6.00	Own.	8-31x4 1/4	36.4	340 L	L	94-3200	5.0	Ch.	C.I.	5	Y	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	151	30x4.50	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156	29x4.75	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
Chrysler.....	156 1/2	30x6.00	Own.	8-31x4 1/4	21.6	170 L	L	35-2200	4.6	He.	Al.	3	N	PH	Y	N	N	N	N	D-R	D-R	P-Long	War.	m-U-P	1/2 Col.	4.9	L-P	E-T	H...	Ros.	S-56 1/2	Bj.	A-Bee—American-Beech
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Chrysler.....	156 1/2	30x6.00	Own.																														

Reasons for **LOCKHEEDS'** **SUCCESS**

Owners of LOCKHEED-equipped passenger cars and trucks will say it is because of the vastly superior performance of these brakes—the ease of application—simplicity of adjustment—low maintenance cost and high wear factor. They will express surprise that all motor vehicles are not provided with equally adequate brakes.

Dealers in LOCKHEED-equipped vehicles will tell you it is because of the demonstrable superiority of these brakes—they help to make sales—they reduce selling costs because they come from the factory ready for delivery and require no attention for many months thereafter. In fact, LOCKHEEDS are in keeping with the high standard of engineering characterizing the car.

These are the primary reasons for the success of LOCKHEEDS, but manufacturers who have adopted them will give you yet another reason, the importance of which may not be fully appreciated.

**GREAT ECONOMIES ARE EFFECTED
IN THE COST OF PRODUCTION
ASSEMBLY BECAUSE OF THE SIM-
PLICITY OF THE LOCKHEED DESIGN.**

What this means to the manufacturer of motor vehicles can only be appreciated by those who have studied the production assembly operations involved in the hydraulic system as compared with those of other designs.

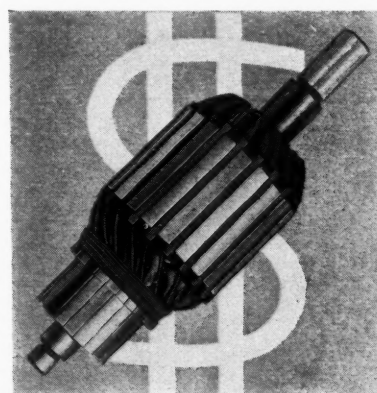
HYDRAULIC BRAKE COMPANY
Detroit, Michigan, U.S.A.

ABBREVIATIONS—
NAMES OF MFRS.
OF STOCK PARTS

[illegible]

Why not
take advantage
of the additional Profits

Fredericks Rewinds Pay!



And now—you can have *immediate* service! Your jobber—if he operates the Fredericks Rewind Exchange Service—has a stock of Lyknu Rewinds! We prefer that you trade in your old armatures for rewinds right from his stock! Prices are the same! However, if no Authorized Fredericks Armature Exchange is near you—ship them direct—quick service is assured!

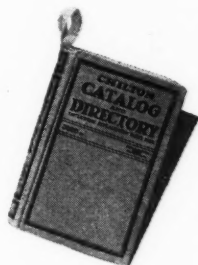
Armature replacement is a profitable business—yet you can make it pay you even a greater profit—with Fredericks Lyknu Rewinds!

Fredericks rewind armatures are completely rebuilt from used armature cores! Burned out armatures are worth money to you because their cores are always good! Save them and add from \$1 to \$6 profit on every armature replacement job!

Every Fredericks is backed by a guarantee the same as a new armature! Lyknu Rewinds are *like new* armatures in every respect! Tested and guaranteed to be mechanically and electrically perfect!

Our facilities and better rewinding methods enable us to pass on to the trade this big added profit opportunity. \$1 to \$6 on every rewind! Write us—for prices and complete details!

H. M. FREDERICKS CO.
LOCK HAVEN PENNA.



There's an Authorized
FREDERICKS Rewind
Distributor near you

Look in the *YELLOW DIRECTORY*
for a Complete List

Or send Old Armatures direct to us



LOOK FOR THIS SIGN

Coming—The LANDIS



Write for this booklet reviewing all types of shock absorbers.

The LANDIS
TRUE HYDRAULIC CONTROL

Price Announcement!

Unique Device Swinging Into Production All Set—Ready to go

*Initial list of cars the Landis will fit
also to be announced*

Within 30 days—in this publication—we will announce the price of the Landis Shock Diffuser. In our opinion, this price will create an entirely new basis of value to the motoring public for real riding comfort under all conditions.

Coincident with this generally-awaited price announcement, we will also list the makes of cars for which we have completed installation details. This list will lengthen until the Landis Shock Diffuser is available FOR ALL MAKES OF CARS.

Both of these announcements will be made in detail in a June issue of this and other trade publications.

Landis Engineering & Mfg. Co., Inc.

Automotive Division

Waynesboro, Pennsylvania



Shock Diffuser

OF SPRING RECOIL



A session of the New Devices Committee of General Motors. Thousands of inventions and suggestions are submitted to the careful consideration of this Committee every year. They come from every state in the Union and every country in the world.



GENERAL

AN OPEN MIND TO NEW IDEAS

THERE are more than 1,000 engineers in General Motors; and more than twenty years of specialized experience lie behind the engineering staffs responsible for Cadillac, LaSalle, Buick, Oakland, Oldsmobile, Pontiac, Chevrolet and Fisher Bodies. It is natural that important inventions and improvements are developed inside the organization itself.

But thousands of alert intelligences all over the world are busy with thoughts about automobiles, and to any one of them an idea may come that is well worth while.

So General Motors has its New Devices Committee which meets at frequent periods. It includes the head of the Patent Department, the directors of the Research Laboratories and Proving Ground and engineering representatives of the car divisions.

Out of the thousands of ideas and suggestions laid before it every year, relatively few can be finally adopted. General Motors cars must be built for service in Siberia as well as in American cities, and amid the rarefied air of mountain peaks as well as on the burning sands of deserts. Many ideas that appear practical under local conditions fall down before the requirements of universal use. Many suggestions, of course, have been previously considered and found impracticable.

Though the percentage of usable ideas is small, the Committee meets always with enthusiasm. It is part of the machinery of constant improvement in General Motors. So long as this spirit of improvement persists, an organization must keep growing; for, however old it may be in years, it will be always youthful in mind.

PRODUCTS OF GENERAL MOTORS

*"A car for every purse
and purpose"*

CHEVROLET
PONTIAC
OLDSMOBILE
OAKLAND
BUICK
LASALLE
CADILLAC

All with Body by Fisher

GENERAL MOTORS TRUCKS
YELLOW CABS AND COACHES

* * *

FRIGIDAIRE
The Electric Refrigerator

* * *

DELCO-LIGHT
Electric Plants

* * *

Delco-Remy Electrical Equipment
Harrison Radiators • Delco-Remy
Lovejoy Shock Absorbers • Jaxco
Steering Gears • A C Spark Plugs
A C Speedometers • A C Oil Filters
New Departure Ball Bearings • Jaxon
Rims, Wheels and Tire Carriers
Brown-Lipe-Chapin Differentials
Hyatt Roller Bearings • Inland
Steering Wheels • Klaxon Horns

* * *

*General Motors passenger cars,
Frigidaire, the electric refrigerator,
and Delco-Light electric plants may be
purchased on the low-cost GMAC
Time Payment Plan*

TUNE IN—General Motors Family
Radio Party. Every Monday Evening.
9.30 Eastern Standard Time. WEA and
30 other stations associated with N. B. C.

MOTORS

Ilerlite
the
"WIG-WAG"
stoplight



Ilerlite Model AA for
passenger cars, Finish in
Nickel, Dimensions 5 x 4
x 3½, For DC current,
Price, \$7.00, U. S. A.

A NEW

100 Inquiries

Imagine the Profits

When the first advertising brings 100 inquiries in one mail, then you know that the public wants the Ilerlite Wig-wag Stoplight.

You know that there is unlimited profit possibility. A virgin market with only one wig-wag stoplight in the field, The Ilerlite.

There are profits for the man who realizes this existing situation and cashes in on it, now. Don't delay.

Safety Appeal

The cry today is safety. Better brakes—careful driving—positive warnings.

A stoplight must be seen instantly to be effective. The public knows a Wig-wag red light is the universal danger signal. Ilerlite is designed to fulfill the safety requirements to the letter. The moving light attracts immediate attention. Ilerlite is the only positive wig-wag stoplight on the market today.

Safety for your customers—means satisfaction and more profits to you.

PROFIT FIELD

in ONE MAIL!

National Advertising

We are launching a national advertising campaign to make sales still easier for you.

We are building a positive market for you in a national prestige that answers the safety demands of passenger car, bus and commercial car drivers.

Sales helps and displays for the dealer are ready. Ilerlite makes an attractive window display. The wig-wag light draws attention.

The market is increasing daily.

Clean Cut Distribution Policy

We have created a clean cut policy of selective distribution to protect your profits.

Profitable volume for the jobber and a total freedom from unfair competition for the dealer.

This policy insures a selective field for additional profits—an increased sales possibility fully protected.

Ilerlite is protected by existing and pending patents. Write now for complete information.



Ilerlite Model A for passenger cars, Finish Black Japanned, Nickel Face, Dimensions 5 x 4 x 3½, For DC current, Price \$6.00, U. S. A.

THE ILER ELECTRICAL MFG. CO.
5103 LAKESIDE AVENUE
CLEVELAND, OHIO

MONOGRAM "Jr." Bar-Cap
List each \$4.00

MONOGRAM "Jr." Royal Onyx Cap
List each \$8.00

MONOGRAM Onyx Gear Shift Ball
List each \$1.50

MONOGRAM "Jr." Wing Cap
List each \$4.00

MONOGRAM "Jr." Wing Cap
List each \$4.00

EASYFILL Radiator Cap
For Ford Model "P"
For Chevrolet Model "V"
(A Kingsley-Miller Product)
List each \$2.50

Oval Onyx Gear Shift Ball
List, each \$1.50

MONOGRAM ORIGINAL

Self Locking Radiator Caps and Onyx Gear Shift Balls for the New FORD and CHEVROLET

MONOGRAM Self Locking Radiator Caps are in three beautiful designs for the new model Chevrolet and Ford Cars. And with our new "EASY-FILL" Locking Cap you now have a selection of four Junior Locking Caps, giving a range in price from \$2.50 to \$8.00. (For Ford Caps specify Model "J"; Chevrolet Model "K").

MONOGRAM Caps and MONOGRAM Onyx Gear Shift Balls are stocked by all leading jobbers and are nationally advertised products.

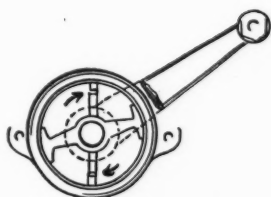
Write us for
Literature and Names of
Nearest Jobbers

THE KINGSLEY-MILLER COMPANY 625 W. Jackson Blvd. CHICAGO

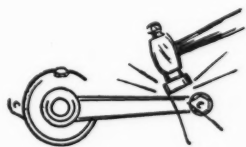
The PATENTED PRINCIPLE of the World's Greatest Shock Absorber explained



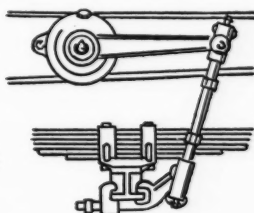
THERE is only one Houdaille Hydraulic Double Acting Shock Absorber. The principle is simple, but patented. The most dramatic proof that automotive engineers buy Houdailles *for the ride* is the fact that they are standard equipment on Lincoln, Pierce-Arrow, Stearns-Knight, Jordan, Cunningham, McFarlan, *The New Ford*, and many European cars.



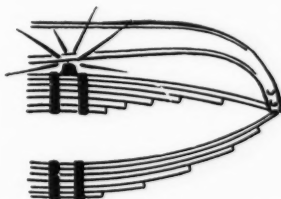
The action of the car spring forces liquid from one chamber to another through small openings. You can push the lever all the way down with one hand—slowly. On smooth pavement they gently control the springs and prevent side-sway.



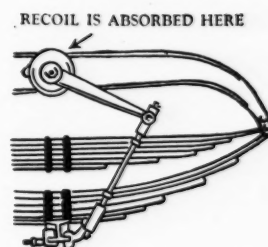
You can't force it all the way with the blow of a sledge hammer—it won't be hurried.



Double acting. This strong steel arm stands guard between the spring and frame of your car.



All the cables and straps made for other types of spring control do not prevent springs from hitting bottom with a crash.



Houdailles control your spring recoil like this—you don't have a recoil that tosses you against the roof!



That's why with Houdailles you can take the punishment of rough roads at "50" without discomfort or danger.

Send for complete information on Houdailles. They are made for all makes of cars, trucks and busses. And men who want to make money should know about the Houdaille Selling Plan

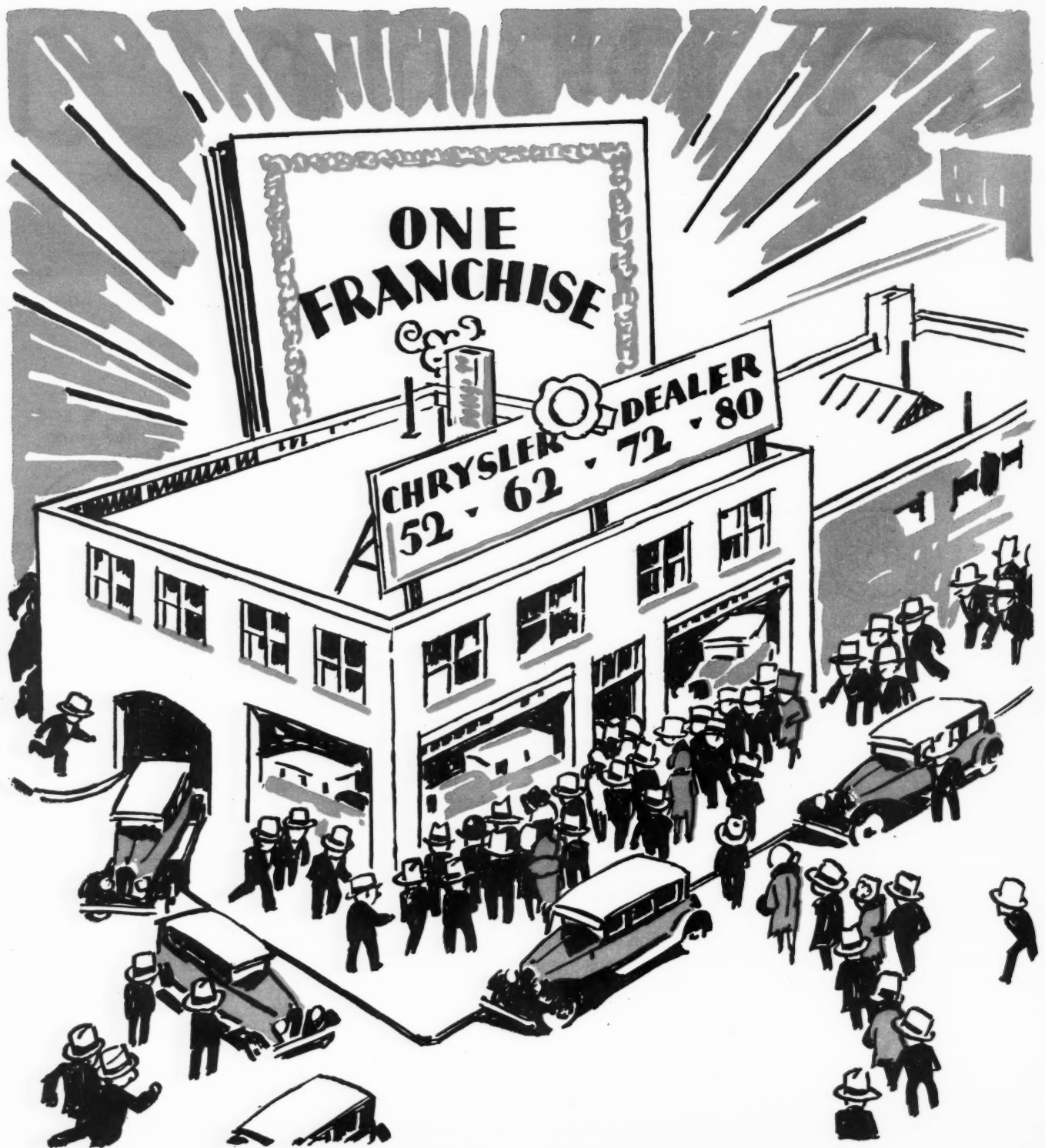
Name _____ Street _____ City _____

HOUE ENGINEERING CORPORATION

Manufacturers

DEPT. MA5, 537 E. DELAVAN AVENUE • BUFFALO, NEW YORK

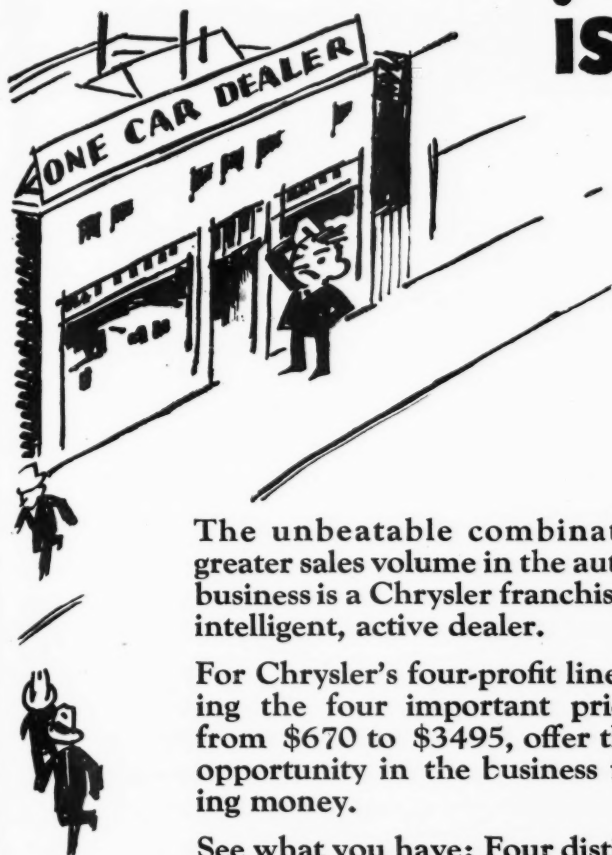
DON'T Your Sales



LIMIT

Possibilities!

With Chrysler, every prospect is your prospect



The unbeatable combination for greater sales volume in the automobile business is a Chrysler franchise and an intelligent, active dealer.

For Chrysler's four-profit lines, covering the four important price fields from \$670 to \$3495, offer the finest opportunity in the business for making money.

See what you have: Four distinct lines of cars, appealing to prospects in every price group. Remember this: Every person interested in buying a motor car is a prospect for one of the four Chryslers. The whole city directory or tax list is your prospect file.

That's an advantage no other line offers.

Chrysler products have been accorded public acceptance plus. Witness Chrysler's rise in only 42 months to its present rank in the industry.

Chrysler prices are right. Chrysler discounts give the profit margin that spells solid business.

Chrysler policies are fair and just, for Chrysler executives are men who were trained in the field and on the firing line and know and supply the things dealers need and desire.

What more could any forward-looking energetic automobile business man want? Isn't this the combination you've always hoped for?

Perhaps there is a Chrysler four-profit franchise available in your community. You may be the very man we want.

Dont overlook this chance. Let us hear from you. We'll keep your inquiry in strictest confidence.

CHRYSLER SALES CORPORATION, DETROIT, MICHIGAN
CHRYSLER CORPORATION OF CANADA, LIMITED, WINDSOR, ONTARIO

CHRYSLER

STORMIZING BARS

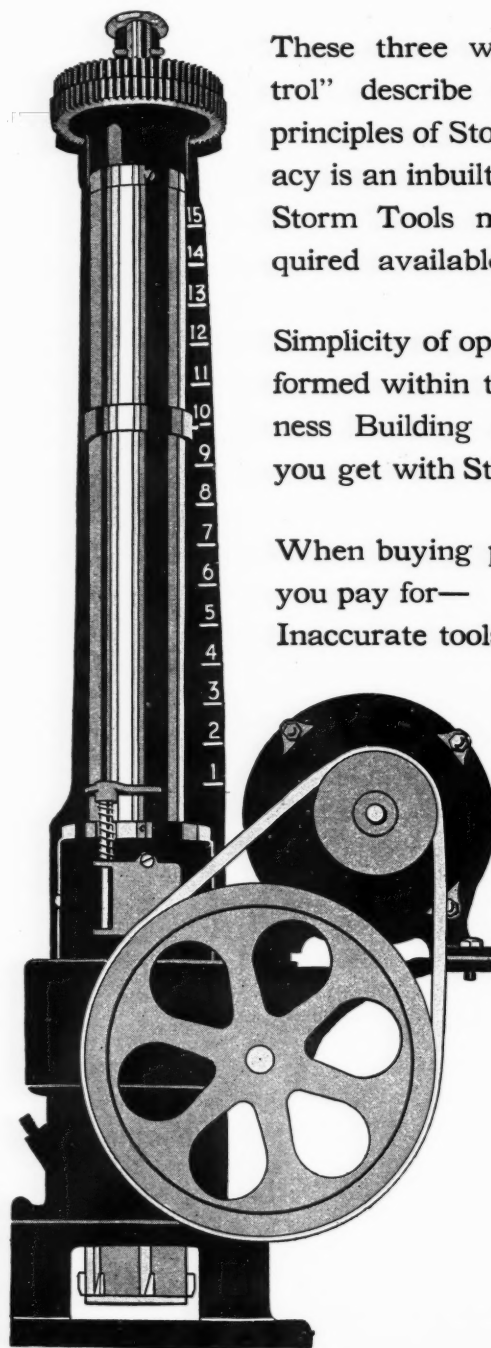
**PRECISION BUILT TO 1/10,000 OF AN INCH
FOR STRAIGHTNESS AND ROUNDNESS**

*Accuracy of 1/10,000 of an inch is 1/20 to
1/30 the thickness of a human hair*

When you consider that the Bars of Stormizing Machines are held to 1/10,000 for straightness and roundness and when you further realize that a human hair must be divided into 20 to 30 parts to be as thin as 1/10,000 then you realize what we mean by Storm Precision.

We do not maintain this extreme accuracy because we like to do "mechanical fancy work"—but because we know it is necessary for renewing and re-aligning worn cylinders square with crankshaft. Present high road speeds require this standard of accuracy.

In the purchase of Stormizing Equipment for renewing cylinders you get more than Precision Tools—you get Advertising Helps and a Sales Building Plan with each Stormizing Machine that assist you to build a profitable business.



These three words "Accuracy Under Control" describe the underlying engineering principles of Stormizing Equipment. Accuracy is an inbuilt quality in every Storm Tool. Storm Tools make the close accuracy required available in the Garage.

Simplicity of operation, accuracy, work performed within the time scheduled, and Business Building Advertising Helps are what you get with Stormizing Equipment.

When buying precision tools, it is accuracy you pay for—

Inaccurate tools are expensive at any price.

An investment in Storm Tools is moderate, permanent and profitable. We have just issued a new book "Stormizing as a Business and Process." It contains much valuable information regarding used cars, motor renewing and profits. Write for a free copy.

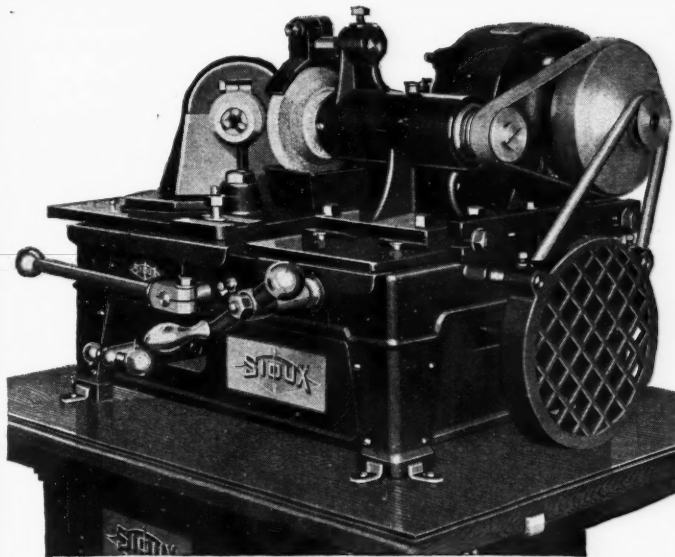
STORM MFG. CO., Inc.
406 (A) 6th Avenue South
MINNEAPOLIS, MINNESOTA

STORMIZING

THE ACCURATE METHOD OF CYLINDER RENEWING

VALVE FACE GRINDING MACHINE

with the
**Sioux Roller
Chuckling System**



No. 620 for valves of any angle with stems of 1-4" to 1-2" diameter. Net price..... **\$145**

NOW- a new Sioux Valve Grinding

Machine that handles a wide range of valve stem sizes, including the new Ford valve — and grinds valves of any angle. The exclusive Sioux Roller Chuckling System assures the most *accurate* work with the greatest *speed*; it is self-aligning, grips the valve stem at the proper place [just above the worn surface] and holds it rigidly centered.

If you want to meet present day competition, pocket a larger net profit on flat rate charges and make extra money by grinding valves for other shops—investigate the SIOUX.

Your Jobber Sells It ALBERTSON & CO.
Sioux City, Iowa, U. S. A.





More than a third — *nearer a half!* — of all 1927 cars, and cars now building, have Carter carbureters.

Surely the Carter principle must be correct and practical.

In manufacture Carter must actually carry out all that can be said of precision, inspection, testing and responsibility. For there

is no other way to get superior carburetion.

And Carter must be following through in the field more effectively than it has ever been done, because the whole trade will tell you so.

Carter's performance, as well as the carbureter's, has created the largest carbureter volume ever achieved.

CARTER CARBURETOR CORPORATION, SAINT LOUIS, DIVISION OF AMERICAN CAR AND FOUNDRY COMPANY

CARBURETER

T.M. REG.

acf

For Every Engine, you can sell the right size and type of



AC 1075 for Model T Fords
Millions of Ford owners prefer this spark plug because of these special features: spring terminal clip, long body for wrench accessibility, AC carbon-proof insulator, drip electrode.



SPARK PLUG

The Standard Spark Plug of the World



AC Type B for Chevrolet
Every Chevrolet made is AC-equipped at the factory. Sell this special Chevrolet Type B Spark Plug in special Chevrolet boxes for Chevrolet cars.



TYPE A— $\frac{7}{8}$ -inch Regular for
*Cadillac *Chrysler
*Hupmobile Six *La Salle
*Nash Light Six *Star
Whippet

AC business is volume business because it covers the whole field and covers it right. Here pictured are the fastest selling types and sizes of spark plugs.

More than 200 of the world's most successful manufacturers use AC Spark Plugs as regular factory equipment. Millions of cars now on the road AC-equipped and 12,000 more engines equipped each day at the factories. The world's biggest replacement market for spark plugs.



TYPE B— $\frac{7}{8}$ -inch Long for
*Chevrolet
*Buick to '24
*Oakland "AA-6"
†*Pontiac to '27 *Pontiac 1928



TYPE C—SAE Long for
*Buick
*Nash Special Six
*Nash Advanced Six
*Oakland ('18 to '24)



TYPE D— $\frac{7}{8}$ -inch Long Thread
for †Dodge "4"
†*Chandler 35A, 37A
*Chandler 135, 137
Cunningham



TYPE E—SAE Regular for
Studebaker (to '27) †Marmion
*Oldsmobile Six ('27) Velie
Willys-Knight "6"



TYPE W—Long Metric for
*Hudson
*Essex



TYPE Z— $\frac{7}{8}$ -inch Special for
Ford Model "A" Packard ('27)
Studebaker ('27)

*Indicates AC Spark Plugs used as Original Equipment †Indicates AC Carbon-proof Spark Plugs are recommended

AC-SPHINX
Birmingham
ENGLAND

AC Spark Plug Company
FLINT, Michigan

AC-TITAN
Clichy (Seine)
FRANCE

© 1928, AC Spark Plug Co.

AC SPARK PLUGS AC SPEEDOMETERS AC AIR CLEANERS AC OIL FILTERS AC FUEL PUMPS
AC GASOLINE STRAINERS AC AMMETERS AC OIL GAUGES AC THERMO GAUGES

Confidence and Respect

Above and beyond all other considerations is the fact that the combined trade circulations of *Automobile Trade Journal* and *Motor Age*, approximately 75,000 paid, reach and cover in excess of 85% of the automotive dealer purchasing power in the United States.*

These two well-edited publications are not only subscribed for and paid for, but command the confidence and respect of the consequential components of our vast net work of automotive dealers from the Atlantic to the Pacific, and from Canada to Mexico.

Therefore if you want new retail outlets, and if you wish to keep present retailers favorably impressed concerning the profits advantage of your product, an adequate use of *Automobile Trade Journal* and *Motor Age* will prove most effective—and pleasingly low in cost.

Chilton Class Journal Company

PHILADELPHIA

Publishers of Automotive Business Papers

AUTOMOTIVE INDUSTRIES
AUTOMOBILE TRADE JOURNAL
MOTOR AGE

AUTOMOTIVE INDUSTRIAL RED BOOK

MOTOR WORLD WHOLESALE
CHILTON CATALOG & DIRECTORY
COMMERCIAL CAR JOURNAL
OPERATION & MAINTENANCE

*This fact is proved. A copy of the proof will be sent if you request it.

Every precedent
where steel has re-
placed wood points
to the day when the
All-Steel automobile
body will be univer-
sally adopted.

• • •

EDWARD G.

BUDD

MFG. CO.

Philadelphia and Detroit



BANG!

When two cars bump at the crossing, with smashing glass, bent fenders, etc., the crowd that immediately collects represents *no particular group of people*. It includes bankers, brokers, grocer boys, bootleggers, candle stick makers, *et al.*

But with your dealer message appearing in the trade's principal newspaper (edited for 25,000 trade units, comprising the industry's real merchandising effectives), the circulation is *really effective*—with waste comparable to that fractional percentage of impurity that the makers of Ivory soap claim for their product.

Have you noted the recent changes in MOTOR AGE, which are giving it an odds-on advantage in the automotive news field? MOTOR AGE is getting a lot of favorable reaction from its subscribers—reaction that spells increasing value to those manufacturers who use its advertising pages.

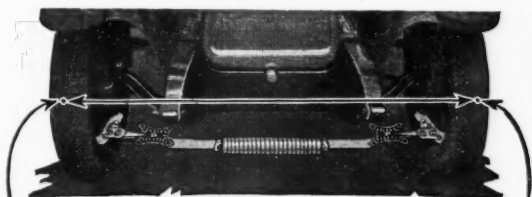
MOTOR AGE circulation is paid. Except for AUTOMOBILE TRADE JOURNAL, which has a fractional advantage, the percentage of voluntary subscription renewal is the highest of any automotive publication. A charter member of the A.B.C. An advertising vehicle that will carry your dealer message the whole distance.

It you are interested in a market analysis to determine, in a practical manner, just how your product can best be merchandised via automotive trade channels, we will be glad to place our unusual research facilities at your service.

MOTOR AGE

A Chilton Class Journal Publication

CHESTNUT and 56th STREETS, PHILADELPHIA



The Bear Wheel Aligner No. 10 is the ONLY tool that measures both pitch and toe-in in sixteenths of an inch from tire center to tire center at hub level!

Get Your Share of the Profits in Wheel Alignment

Garages are making big money lining up wheels and axles. With this tool you can measure both pitch and toe-in, find the CAUSE of hard steering and excessive tire wear, uncover hundreds of dollars worth of repair work for your shop.

The Bear Wheel Aligner No. 10 is the greatest tool of all for aligning wheels. With the Bear Axle Gauge, Axle Straightener, and Tracking Gauge, too, you can align and straighten wheels, axles, springs, steering assembly—*everything* below the chassis. Free instruction book tells how. Write for further information at once and get this extra profit for your shop.

Bear Manufacturing Co.
Rock Island, Ill.

KELLOGG COMPRESSORS

Unduplicated Popularity

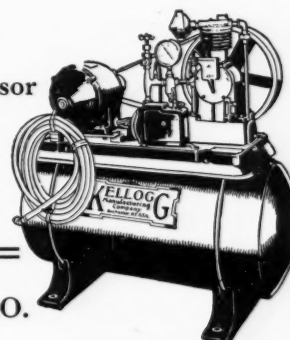
Unfailing performance and outstanding value make the KELLOGG Bulldog Air Compressor the most popular for the place requiring an average-sized air compressor.

½ horsepower motor
32 gal. tank
2¼" bore x 2" stroke
Automatic control
Automatic pressure unloader
Completely equipped



KELLOGG
Bulldog Air Compressor

\$168⁰⁰
Net



KELLOGG MFG. CO.
200 Humboldt St.
ROCHESTER, N. Y.

*There are Profit Making Ideas
in Every Issue of*

MOTOR AGE

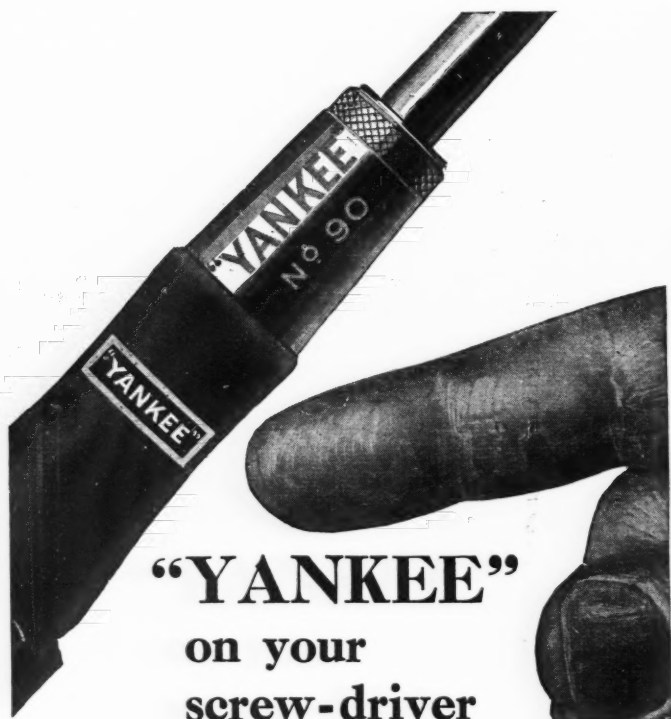
Many subscribers of MOTOR AGE, who realize the value of its contents each week, route every issue regularly through their places of business to all departments.

As a means of business-building this is a profitable habit to encourage, both for the benefit of the organization and its individual members. It is always best to read MOTOR AGE every week.

MOTOR AGE

CHESTNUT and 56th STS.

PHILADELPHIA, PA.



"YANKEE" on your screw-driver

means a tool that never costs you loss of time. The handle can't work loose and wobble or turn on the blade. The blade is made of special steel with special tempering, and won't twist, crack, break, or bend on the edge.

"Yankee" experts test every blade twice, before any "Yankee" Screw-driver can go to your dealer for you.



"YANKEE" Plain Screw-drivers

No. 90—Standard Style: 15 sizes, 1½" to 30" blades. Price, 6", 55c; 8", 75c. (The giant sizes, up to 30-inch blades, let you reach in and drive heavy screws anywhere).

No. 95—Cabinet Style: 11 sizes, 2½" to 15½" blades. Price, 6½", 50c; 8½", 65c.

Your dealer can supply you.

Write us for "Yankee" Tool Book, FREE. Shows "Yankee" Tools in use on motor work: Ratchet Breast, Hand and Chain Drills. Automatic Bench Drills. Ratchet Tap Wrenches. Ratchet Braces. Removable-base Vises, etc.

"YANKEE" on the tool you buy means utmost in quality, efficiency and durability.



North Bros. Mfg. Co., Philadelphia, U. S. A.

YANKEE TOOLS

Make Better Mechanics

STANDITALL
AUTO RADIATOR



STANDITALL
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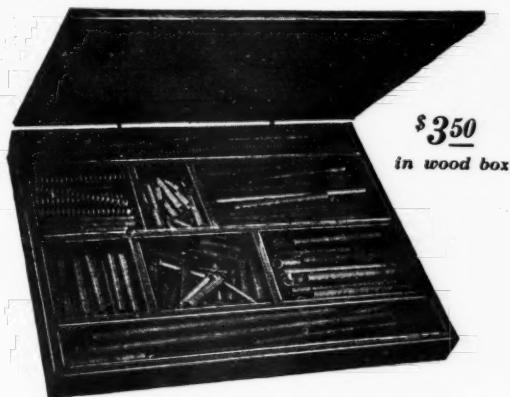


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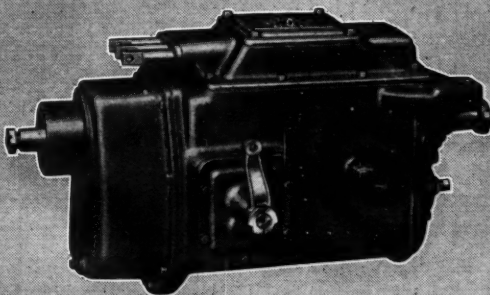
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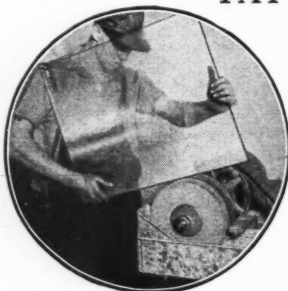


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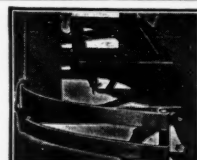
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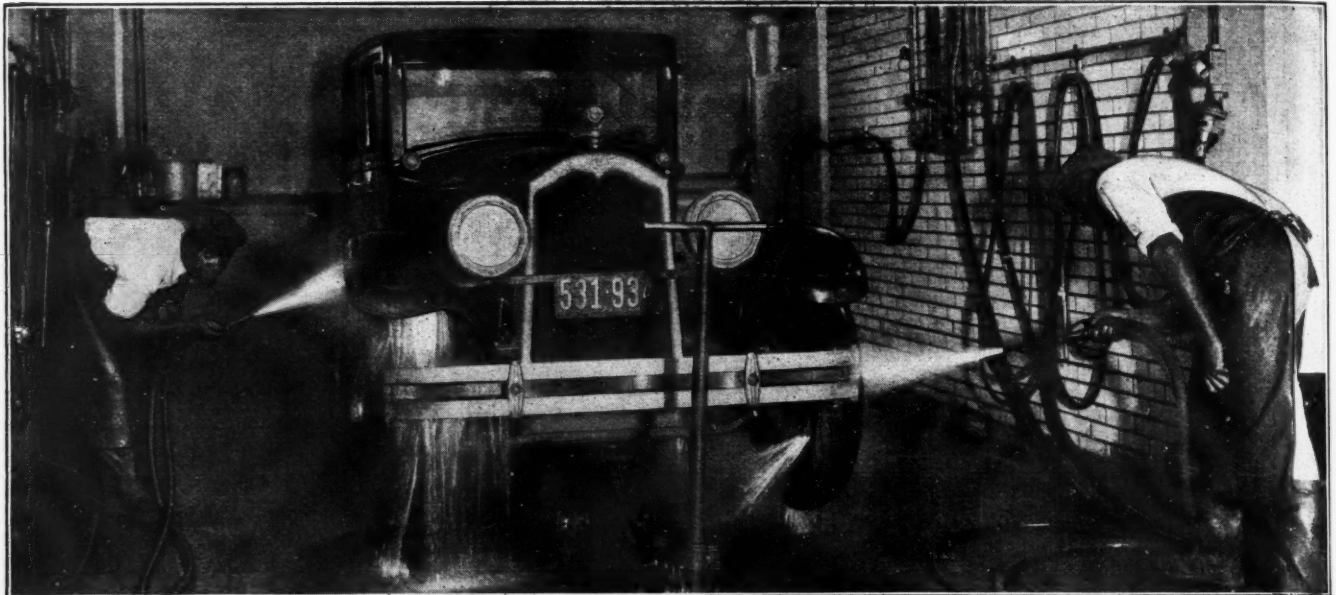
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Curtis Car Washers pay for themselves 3 to 6 times a year!

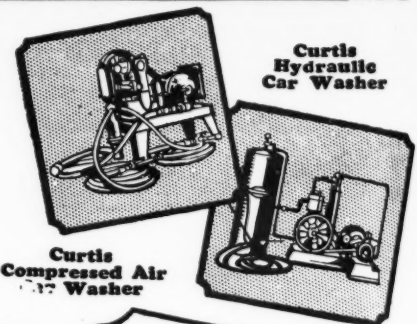
E. L. McClure, President the McClure Motor Co., Mt. Pleasant, Ia., who owns a Curtis compressed air car washing outfit, has records which show that the Curtis has paid for itself every 57 days in his business. Another owner finds his outfit paying for itself every 81 days.

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Check items in which interested, write name and address in margin—and mail

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	Style "V" Two Stage Compressor. Air-Cooled. 1/4 to 2 H.P.
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	Air Stands. Reel type or tower type. Easy to operate.
	Paint Spray Compressor. Hand un-loader. (By-pass for starting.)
	Model "A" Air Compressors. Full cooled. Water
	Air Hoists, Cranes, Trolleys. Fast, economical, speed up production.
	I-Beam Crane, 10 to 40 ft. span. 1/2 to 10-ton capacity. A4



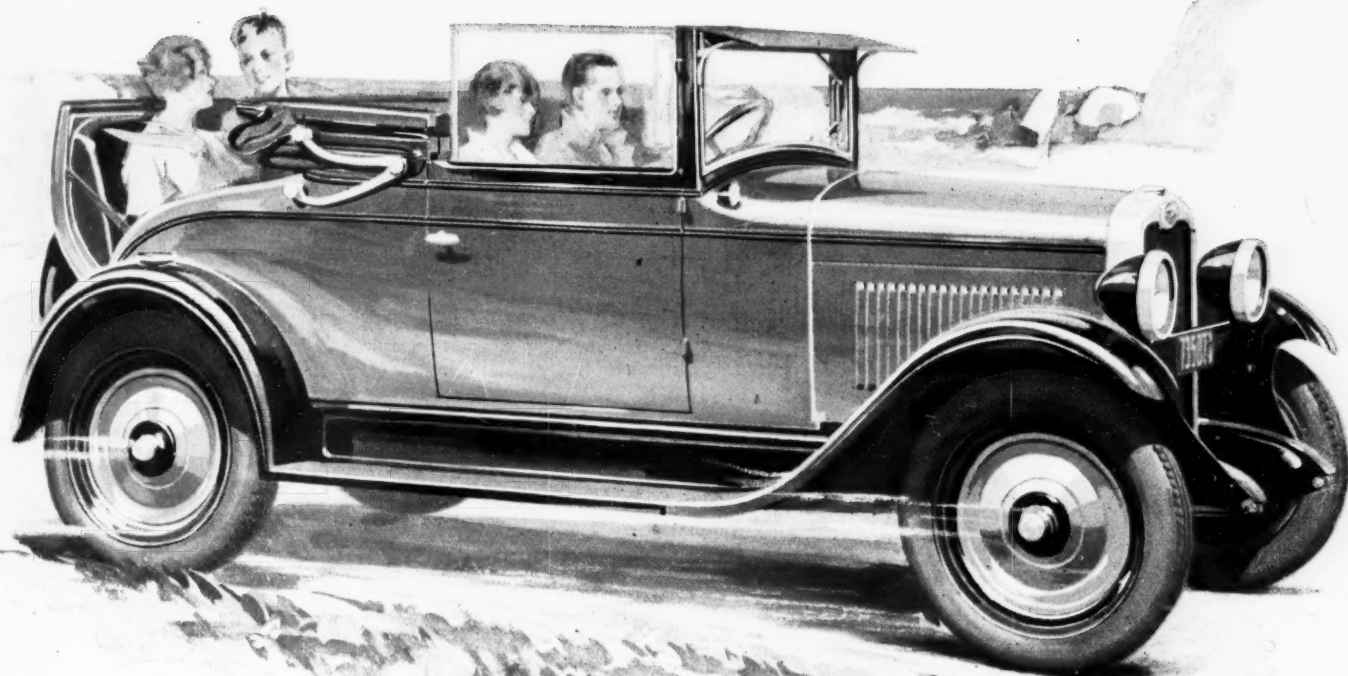
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\$695

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